This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

MODERN GEOGRAPHY:

DESCRIPTIVE, POLITICAL, & PHYSICAL.

BY

WILLIAM J. UNWIN, M.A.,

PRINCIPAL OF HOMERTON COLLEGE.

FIRST PART—DESCRIPTIVE.

London:

LONGMAN, GREEN, LONGMAN, & ROBERTS.

MDCCCLXII.

570. a. 155.

2017. f. 157

EDITED BY THE AUTHOR.

Homerton College Atlases and Maps, 17½ *in. by* 13½ *in.*
Engraved by EDWARD WELLER, F.R.G.S.

1. Hydrographical, Physical, and Political, 27 Maps, half-bound, 15s.
2. Physical and Political, 18 Maps, half-bound, 10s. 6d.
3. Hydrographical, 9 Maps, half-bound, 6s.
4. Physical, 9 Maps, half-bound, 6s.
5. Political, 9 Maps, half-bound, 6s.

Blank Projections for Map Drawing.
In a Case, 10 Maps, 2s. 6d.

Corresponding Maps, coloured, for Copies.
In a Case, 9 Maps, Hydrographical. 9 Maps, Physical. 9 Maps, Political. Each set, 4s. 6d.

LONGMAN, GREEN, LONGMAN, & ROBERTS, PATERNOSTER ROW.

CONTENTS.

PAGE

THE WORLD.

General Division of Land and Water 1
The Eastern Continent 2
The Western Continent 3
Oceania 4

EUROPE.

Position and Boundaries 5
Seas, Straits, Gulfs, and Islands 5
Coast Line, Capes, Peninsulas, and Isthmuses 7
Mountains 8
Plains 23
Drainage 24
Lakes 66
Principal Rivers, divided according to the Ocean basins ... 67

ASIA.

Position and Boundaries 73
Seas, Gulfs, Straits, and Islands 73
Coast Line, Capes, Peninsulas, and Isthmuses 75
Surface of the Land—Mountains, Slopes 75
Lakes 86

AFRICA.

Position and Boundaries 87
Seas, Gulfs, Straits, and Islands 87
Coast Line, Capes, and Isthmuses 88
Surface of the Land—Mountains, Slopes 89
Lakes 96

PAGE

NORTH AMERICA.
Position and Boundaries 97
Seas, Gulfs, Straits, and Islands 97
Coast Line, Capes, Peninsulas, and Isthmuses 99
Surface of the Land—Mountains, Slopes 99
Lakes 105

SOUTH AMERICA.
Position and Boundaries 106
Seas, Gulfs, Straits, and Islands 106
Coast Line, Capes, Peninsulas, and Isthmus 107
Surface of the Land—Mountains, Slopes 107
Lakes 112

OCEANIA.
Position 113
AUSTRALASIA 113
Australia.
Position and Boundaries 113
Gulfs, Straits, and Islands 114
Coast Line, Capes, and Peninsulas 114
Surface of the Land—Mountains, Slopes 114
Lakes 117
Tasmania.
Gulfs, Islands, Capes, and Peninsulas 117
Surface of the Land—Mountains, Slopes, Lakes 118
New Zealand.
Position, Gulfs, Straits, Capes, and Peninsulas 118
Surface of the Land—Mountains, Slopes, Lakes 119
MALAYSIA 121
MICRONESIA 123
POLYNESIA 123

DESCRIPTIVE GEOGRAPHY.

THE WORLD.

GENERAL DIVISION OF LAND AND WATER.

§ 1. The surface of the earth consists of land and water. The *land* occupies about 51, and the *water* about 146 millions of English square miles.

§ 2. The land forms three continents—

1. THE EASTERN CONTINENT, or Old World, comprising three divisions—Europe, Asia, and Africa.

2. THE WESTERN CONTINENT, or New World, comprising two divisions—North America and South America.

3. AUSTRALIA, the only important mass of land in OCEANIA, constituting the sixth division of the globe.

§ 3. The water, which forms, with slight exceptions, one vast continuous ocean, is divided into five parts, the Arctic, Atlantic, Indian, Pacific, and Antarctic Oceans.

1. THE ARCTIC OCEAN, surrounding the North Pole, lies within the Arctic Circle, and is bounded by the northern coasts of Europe, Asia, and America. It is connected with the Pacific by Behring's Strait, and with the Atlantic by the wide strait between Greenland and Norway. *Area*, 5,000,000 square miles.

Principal Branches.—E., White Sea, Sea of Kara, Gulf of Obi, Gulf of Yenisei; W., Behring's Strait, Gulf of Boothia, Baffin's Bay.

2. The Atlantic Ocean is bounded North, by the Arctic Circle; South, by the Antarctic Circle; West, by the coast of America as far south as Cape Horn, and thence along the meridian of that Cape until it meets the Antarctic Circle; and East, by the shores of Europe, and of Africa, as far south as the Cape of Good Hope, and thence along the meridian of that Cape till it meets the Antarctic Circle. *Area*, 34,000,000 square miles.

Principal Branches. — E., Baltic Sea, North Sea, Irish Sea, English Channel, Bay of Biscay, Mediterranean, Gulf of Guinea; W., Greenland Sea, Hudson's Bay, Gulf of St. Lawrence, Gulf of Mexico, Caribbean Sea.

3. The Indian Ocean extends from Asia on the North, to the Antarctic Circle on the South. Its limits, on the west, are the shores of Arabia and Africa, as far south as the Cape of Good Hope, and thence along the meridian of that Cape until it meets the Antarctic Circle; and on the east, the west coast of the Burman empire, and a part of the Malayan peninsula, the west coasts of the Sunda Islands, and Australia, as far as South-west Cape, the southernmost point of Van Diemen's Land, and thence continued along the meridian of that point until it meets the Antarctic Circle. *Area,* 30,000,000 square miles.

Principal Branches.—N., Bay of Bengal, Persian Sea, Arabian Sea, Red Sea; W., Mozambique Channel; E., Strait of Malacca, and the Australian Bight.

4. The Pacific Ocean is bounded North, by the Arctic Circle; South, by the Antarctic Circle; West, by the east coast of the Burman empire and of the island of Sumatra, the northern shores of Java, Horn, and Timor, and the coasts of Australia, from Melville Island to South-west Cape, and thence along the meridian of that Cape to the Antarctic Circle; and East, by the west coast of America, and the meridian of Cape Horn, until it meets the Antarctic Circle. *Area,* 70,000,000 square miles.

Principal Branches.–N.W., Sea of Okhotsk, Sea of Japan, Yellow Sea, North and South Chinese Seas, Gulf of Siam, Gulf of Carpentaria, Coral Sea; E., Behring Sea, Gulf of California, Gulf of Panama.

5. The Antarctic Ocean surrounding the South Pole lies within the Antarctic Circle. *Area,* 7,000,000 square miles.

The Atlantic and Pacific Oceans are subdivided into three portions—a northern, a southern, and an intertropical; the Indian Ocean has but two divisions, an intertropical and a southern.

THE EASTERN CONTINENT.

§ 4. BOUNDARIES.—*North,* the Arctic Ocean; *West,* the Atlantic Ocean; *East of Africa and South of Asia,* the Indian Ocean; *East of Asia,* the Pacific Ocean.

§ 5. PHYSICAL DIVISIONS.—The waters of the Eastern Continent flow into four oceans. Hence it has four principal slopes, forming, with a continental basin, five principal divisions.

1. The slope to the Arctic Ocean from North Cape to East Cape in Asia.

PRINCIPAL RIVERS.—*European:* Northern Dwina and Petchora. *Asiatic:* Oby, Yenisei, and Lena.

2. The slope to the Pacific from East Cape to Cape Romania.

PRINCIPAL RIVERS.—*Asiatic:* Amoor, Hoang-ho, Yang-tse-kiang, Camboja, and Meinam.

3. The slope to the Indian Ocean from Cape Romania to the Cape of Good Hope.

PRINCIPAL RIVERS.—*Asiatic:* Irawaddy, Brahmapootra, Ganges, Godavery, Kistnah, Nerbudda, Indus, and Euphrates.—*African:* Zambesi.

4. The slope to the Atlantic Ocean from North Cape to the Cape of Good Hope.

PRINCIPAL RIVERS.—*European:* Vistula, Oder, Elbe, Rhine, Seine, Loire, Tagus, Rhone, Po, Danube, Dneiper, and Don.—*African:* Nile, Senegal, Gambia, Niger, Congo, and Orange River.

5. The continental basin of Central Asia, surrounded by the other slopes, and divided into two parts: one on the East very elevated, the central plateau of Asia; the other on the West much depressed, the basin of the Caspian Sea and of Lake Aral.

PRINCIPAL RIVERS. | *Asiatic:* Sir-Daria and Amoo Daria.—*European:* Ural and Volga.

THE WESTERN CONTINENT.

§ 6. BOUNDARIES.—*North*, the Arctic Ocean; *East*, the Atlantic Ocean; *West*, the Pacific Ocean.

§ 7. PHYSICAL DIVISIONS.—The waters of the Western Continent flow into three oceans, and thus it has three principal slopes.

1. The slope to the Arctic Ocean from West Cape to Cockburn Island.

PRINCIPAL RIVERS.—Mackenzie, Coppermine, and Great Fish River.

2. The slope to the Atlantic from Cockburn Island to Cape Horn.

PRINCIPAL RIVERS. — Saskatchewan, Churchill, St. Lawrence, Mississippi, Rio Grande del Norte, Magdalena, Orinoco, Essequibo, Amazon, Tocantins, Paranahiba, San Francisco, Urugay, and Rio de la Plata.

3. The slope to the Pacific from West Cape to Cape Horn.

PRINCIPAL RIVERS.—Yukon, Frazer, Columbia, and Colorado.

OCEANIA.

§ 8. BOUNDARIES.—Oceania comprises the islands and archipelagos in the Pacific, South-east of Asia, and South-west of America, from lat. 27° 44′ N (Bonin Is.) to lat. 56° S (Macquarie Is.); and from long. 95° E (Sumatra) to long. 110° W. (Easter Is.) It includes—AUSTRALASIA, MALAYSIA, MICRONESIA, and POLYNESIA.

PHYSICAL DIVISIONS.—The interior of Australia having been only partially explored, the watersheds which determine its slopes have not been ascertained.

EUROPE.

§ 9. POSITION.—Europe, a peninsula branching out from Western Asia, lies between the 36th and 71st parallels of north lat., and between the 10th meridian of west and the 60th of east longitude.

Extreme Points.—North, C. Nordkyn 71° 6′ N. lat.; South, C. Tarifa 36°, and C. Matapan 36° 17′ N. lat.; West, C. St. Vincent 9°, C. Roca 9° 28′, W. long.; East, Mouth of the Kara 68° 30′ E. long. Some of the islands extend farther—Spitzbergen 80° 48′ N. lat.; Candia 34° 55′ N. lat.; the Azores 31° 16′ W. long.

Dimensions.—Europe extends from C. Waigatz, North-east, to C. Tarifa, South-west, contracting as it approaches the South-west. *Length*, from the Kara N.E. to C. St. Vincent S.W., 3,300 miles. *Breadth*, from C. Nordkyn North to C. Matapan South, 2,400 miles. *Area*, including the islands, 3,800,000 square miles.

Form.—The general or *normal* shape is shown by lines connecting the mouth of the Kara, Lewis (Western Isles), Gibraltar, Nice, Cerigo, Odessa, C. Apcheran, and thence to the river Kara.

§ 10. BOUNDARIES.—*North*, the Arctic Ocean; *West*, the Atlantic; *South*, the Strait of Gibraltar, the Mediterranean, the Archipelago, the Dardanelles, the Sea of Marmora, the Bosphorus, the Black Sea and the Caucasus Mountains; *East*, the Caspian Sea, the river Ural, the Ural mountains, and the river Kara.

SEAS, STRAITS, GULFS AND ISLANDS.

§ 11. The Arctic Ocean forms—1. The Gulf of Kara, between Nova Zembla and Asia. 2. The Strait of Kara, between Nova Zembla and Waigatz I. 3. The Strait of Waigatz, between Waigatz I. and Europe. 4. The bay

of Tcheskaia, West of Kolguev I. 5. The White Sea, on the coast of Russia.

In the White Sea are the bays of Archangel and Onega, and the Gulf of Kandalask.

§ 12. The Atlantic Ocean forms—1. The Irish Sea, between Ireland and Great Britain. 2. The North Sea, between Great Britain and the Continent. 3. The Baltic Sea, between Denmark, Sweden, Russia, and Prussia. 4. The English Channel, between England and France. 5. The Bay of Biscay, West of France. 6. The Mediterranean, between Europe and Africa. 7. The Black Sea, between Russia and Asiatic Turkey.

1. *The Irish Sea* has on the north, the North Channel, and on the south, St. George's Channel.

2. *The North Sea* has the Wash on the east coast of England—the Nore at the mouth of the Thames, and on the northern coast of Holland the Zuyder Zee, formed by an irruption of the ocean in the 13th century.

3. *The Baltic Sea* is entered by the Channels Skagerrack, between Norway and Denmark, and Cattegat between Sweden and Denmark, which terminate in three straits—the Sound between Sweden and Zealand I., the Great Belt between Zealand I. and Funen I., and the Little Belt between Funen and Schleswig. It comprises the gulf of Danzig S.E., the gulfs of Riga and Finland N.E., the strait of Aland N.W., and the gulf of Bothnia N.

4. *The English Channel* is connected with the North Sea by the Strait of Dover.

5. *The Mediterranean* is entered by the Strait of Gibraltar. Its principal members are, the Gulf of Lyons, S. of France; the Gulf of Genoa, N. of Corsica; the Strait of Bonifacio, between Corsica and Sardinia; the Tyrrhenian Sea, between Italy and the islands of Corsica and Sardinia; the Strait of Messina, between Sicily and Italy; the Adriatic Sea, between Italy and Austria and Turkey, communicating with the Ionian Sea by the Strait of Otranto; the Ionian Sea, between the south of Italy and Greece, with its branches the gulfs of Taranto and Lepanto; the Archipelago, between Greece

and Asia Minor, with its branches the gulfs of Nauplia, Egina, Saloniki, and Contessa; the Sea of Marmora, communicating with the Archipelago by the Dardanelles, and with the Black Sea by the Bosphorus; the Levant, the eastern part of the Mediterranean.

6. *The Black Sea* is connected with the Sea of Azof by the Strait of Yenikale. N.W. of the Crimea is the Gulf of Perekop.

§ 13. *The Caspian Sea*, the largest lake in the world. *Area*, 140,000 square miles.

§ 14. ISLANDS.

1. *In the Arctic Ocean.*—Nova Zembla, an archipelago consisting of three large and several smaller islands, Waigatz, and Kolguev, all belonging to Russia; the Loffoden Is., belonging to Sweden.

2. *In the Atlantic.*—Iceland and the Faro Isles, belonging to Denmark; the British Isles, comprising Great Britain, Ireland, the Western Isles, the Orkney, and Shetland Is.; the Channel Islands, belonging to Great Britain; the Azores, to Portugal.

3. *In the Baltic.*—Zealand, Funen, and Bornholm, parts of Denmark; Rugen, belonging to Prussia; Oeland and Gothland, belonging to Sweden; Oesel and Dago, at the entrance to the Gulf of Riga; and the Aland Isles, at the entrance to the Gulf of Bothnia, all belonging to Russia.

4. *In the Mediterranean.*—The Balearic Isles belonging to Spain; Corsica, belonging to France; Sardinia and Sicily, parts of the kingdom of Italy; Malta, belonging to Great Britain; Illyrian Isles, belonging to Austria; Ionian Isles, a republic under the protectorate of Great Britain; Candia, belonging to Turkey.

COAST LINE, CAPES, PENINSULAS, AND ISTHMUSES.

§ 15. THE COAST LINE is estimated at 20,000 miles, or a mile to every 190 square miles of surface, of which only about 3,000 miles are of difficult access.

Asia has only a mile of coast to every 533 square miles; Africa, 1 to 700; North America, 1 to 260; South America, 1 to 420; Australia, 1 to 300.

§ 16. Capes.—The indentations of the coast form projections termed *capes, promontories, headlands,* or *points.*

1. *Scandinavia.*—C. Nordkyn; North Cape, in Magerœ I., the Naze, south of Norway; C. Falsterbo, south of Sweden.

2. *Denmark.*—The Scaw, the northernmost point.

3. *Great Britain.*—North, Duncansby Head; South-east, the South Foreland; and South-west, Land's End, and Lizard Point.

4. *Ireland.*—Malin Head, North; Mizen Head, South.

5. *France.*—N.W., C. La Hague; Point St. Matthieu, near Brest.

6. *Spanish Peninsula.*—N.W., C. Ortegal, C. Finisterre; W., C. Roca; S.W., C. St. Vincent; C. Tarifa, on the Strait of Gibraltar; S.E., C. Gata and C. Palos; N.E., C. Creus.

7. *Italy.*—C. Spartivento, South-west; C. Leuca, South-east.

8. *Greece.*—C. Matapan, south of the Morea.

§ 17. Peninsulas.

1. *On the North.*—The Scandinavian, comprising Sweden and Norway, between the Atlantic and Baltic; the Danish, between the Baltic and North Sea.

2. *On the West.*—Brittany, between the English Channel and the Bay of Biscay.

3. *On the South.*—The Spanish (comprising Spain and Portugal), between the Atlantic and Mediterranean; the Italian, between the Tyrrhenian and Adriatic Seas; the Morea, formed by the gulfs of Lepanto and Egina; the Crimea, between the Black Sea and the Sea of Azof.

§ 18. Isthmuses.—Of these, two have distinctive names—the Isthmus of Corinth, connecting the Morea with Northern Greece; and the Isthmus of Perekop, connecting the Crimea with the mainland of Russia.

MOUNTAINS.

§ 19. Europe is separated into three parts—*South-western, Central, and North-eastern,*—by contractions occurring at two points; *one,* formed by the Bay of Biscay and the Gulf of Lyons; *the other,* by the Baltic and Black Seas.

§ 20. The mountains of Europe constitute eleven systems:—*one, South-western,* the Spanish: *six, Central,* the Alpine in the centre, and in relation to this system, the Apennine S.; the Hellenic, S.E.; the Hercynio-Carpathian, N.; the French, W.; the British, N.W.; *four, North-eastern,* the Sarmatian in the centre; the Scandinavian, N.W.; the Ural, N.E.; the Caucasian, S.E.

South-western Europe.

§ 21. THE SPANISH SYSTEM, extending from the Straits of Gibraltar to the Languedoc Canal, comprises three principal ranges.

I. THE SOUTHERN, from C. Tarifa to C. Gata, contains the Sierra Nevada, the shortest, the highest, and the most dislocated chain of the Peninsula, rich in mineral wealth, especially in lead. Culminating point, Peak of Mulhaçen, 11,663 feet.

II. THE CENTRAL extends in a semicircle from C. Tarifa to the source of the Ebro, in a series of mountain groups, connected with the central plateau, and commonly called the Iberian Mts. These are Sierra de Huescar, S.E.; Sierra d'Alcaraz, N.E. of the Guadalquiver; a vast arid plateau, E. of the upper course of the Guadiana; Sierra de Cuença S.E., Sierra d'Albaracin E., and Sierra de Molina N.E. of the upper course of the Tagus; Sierra Moncayo E., and Sierra d'Occa N.E. of the upper course of the Douro.

From the central plateau three great chains strike off to the west in a direction parallel with each other and with the S. Nevada.

1. *Between the Guadiana and Guadalquiver.* A chain commences at Sierra d'Alcaraz, and running westward terminates at the embouchure of the Guadiana; the more Eastern portion, S. Morena, is connected with the central plateau.

2. *Between the Guadiana and Tagus.* The Mts. of Toledo blend imperceptibly with the plateau East of the Guadiana, and are succeeded by the Sierras Guadalupe, Estremoz, and that of Monchique which terminates at C. St. Vincent.

3. *Between the Tagus and Douro.* The Mts. of Castile, a chain detached from Sierra Molina, comprising Sierra Guadarama East,

Sierra Gredos central, Sierra d'Estrella West, and terminating at C. Roca.

III. The Northern, from C. Creus on the Gulf of Lyons to C. Finisterre, comprises—

1. *The Pyrenees* between France and Spain from C. Creus to the mouth of the Bidassoa, the S.W. angle of the Bay of Biscay. Its culminating point is Pic de Nethou (Maladetta) 11,168 feet.

2. *The Cantabrian*, or maritime chain, from the Bidassoa to C. Finisterre, comprises the Gallician, Asturian, and Biscayan Pyrenees.

The passes of the Pyrenees are practicable for carriages at the extremities of the chain, at other points there are only footpaths.

Central Europe.

§ 22. The Alpine system contains the highest European mountains, and forms a centre, with which the other mountain systems of this part of the Continent are more or less connected. It extends from Mont Ventoux in the West, to Mont Semmering in the East, lying between the Rhone and the Danube, with its affluent the Save. In the South-west it ends where the Apennines begin, north of Genoa; on the North it terminates between the Saône and the Rhine, at the northern extremity of the Jura, and between the Rhine and the Danube, at the northern extremity of the Vorarlberg or Algavian Alps; in the South-east it borders on the Adriatic, as far as the right bank of the Kulpa, an affluent of the Save, where the Dinaric Alps commence.

The Alps may be divided into *Western*, *Central*, and *Eastern*.

I. The Western Alps comprise—

1. *The Maritime*, from the Col de Tenda 6,159 feet, to Monte Viso 13,600 feet, the source of the Po.

2. *The Cottian*, to the pass of Mont Cenis 6,772 feet, or to the left bank of the Dora Riparia, an affluent of the Po.

3. *The Graian*, to the foot of Mont Blanc 15,744 feet, the source of the Dora Baltea, and culminant point of the Alps.

II. THE CENTRAL ALPS include—

1. *The Pennine*, to Mt. St. Gothard 10,900 feet, the source of the Rhone.

2. *The Lepontine*, to Mount Maloia, the source of the Inn. Culminating point, Monte Rosa 15,210 feet.

3. *The Rhetian*, to the Drei Herren Spitze 10,122 feet, the source of the Drave, an affluent of the Danube.

North of the Central Main Stem.

1. *The Jura* in the North-west, between the Doubs, an affluent of the Saône, and the Aar, an affluent of the Rhine, along the frontier of France and Switzerland. Near the Rhone at Geneva it joins the Jorat—a small chain on the northern shore of the Lake of Geneva, united, at the Dent de Jaman, to the Bernese Alps.

2. *The Bernese Alps*, nearly parallel with the Pennine, one of the loftiest and most remarkable mountain masses in Europe. Highest peaks, the Finster Aar Horn 14,026 feet, the Jungfrau 13,672 feet, the Schreckhorn, and the Mönch. The passes are few and elevated, and are only bridle-paths, impracticable for carriages.

3. *The Alps of the four Forest Cantons* (Vierwaldstatter), between Berne and Unterwalden on one hand, and Uri on the other.

4. *The Alps of Glarus and Schwyts*, from Mt. St. Gothard to Galanda, North of Chur. Culminating point, the Dodi, the source of the Linth.

5. *The Thur Alps*, North of the Lake of Wallenstadt. Highest point, the Sentis.

6. *The Grisons Alps*, detached from the Maloia to the North-east, through the Canton of the Grisons.

7. *The Vorarlberg, or Algavian Alps*, East of the Lake of Constance, between the Rhine and the Inn.

8. *The Alps of Constance*, North of the Lake of Constance, through Wurtemburg.

South of the Central Main Stem.

1. *The Valteline* group, South and East of the Adda, and West of the Oglio. Culminant point, M. Tresero 11,867 feet.

2. *The Oertler Alps*, detached from the Rhetian, between the sources of the Adda and Adige, uniting to the South with the Adamello, the source of the Oglio. Culminating point, Oertler Spitz 12,851 feet.

III. THE EASTERN ALPS, from the Drei Herren Spitze to the Danube, comprise—

1. *The Noric*, a rugged and lofty chain of snow-covered peaks without passes, between the Salza and the Drave, containing the sources of the Muhr and the Enns. Culminating point, Gross Glockner 12,425 feet.

2. *The Styrian*, a prolongation of the Noric from M. Elend, between the Enns and the Muhr to Semmering.

North of the Eastern Main Stem.

1. *The Salzburg Alps*, between the Jura and the Salza.

2. *The Wiener Wald*, or *Forest of Vienna*, East of the Enns, and the Bakony Wald, East of the Raab to the Danube at Waitzen.

South of the Eastern Main Stem.

1. *The Tridentine*, between the Eisach and Adige, and the Piave.

2. *The Carnic*, from the Drei Herren Spitze to Mont Terglou, the source of the Save. Culminating point, the Marmolatta 11,509 feet. A prolongation of this chain runs eastward between the Drave and the Save.

3. *The Julian Alps*, South of Mont Terglou 9,386 feet, to the right bank of the Kulpa, an affluent of the Save.

The passes of the Alps practicable for carriages are those of Mt. Genèvre 6,119 feet, Mt. Cenis, the Little St. Bernard, the Simplon 6,578 feet, and the St. Gothard. To the East of these, several roads have been constructed by Austria.

§ 23. THE APENNINE SYSTEM consists of a principal chain, with branches in Italy, and in the islands of Sicily, Sardinia, and Corsica. It is a secondary range, having an average elevation of from 5,000 to 6,000 feet, but rising at its culminant point, Monte Corno, or Il Gran Sasso, in the centre of Italy, to a height of 9,521 feet.

I. THE APENNINES, commencing at the gorge of Cadibon, N.W. of Genoa, where the Maritime Alps terminate, run first in an easterly direction, along the shore of the Gulf of Genoa, then turning southward, extend throughout the whole length of the peninsula. At the source of the Brandano, a tributary of the Gulf of Taranto,

they bifurcate, forming the frame-work of two smaller peninsulas, one of which leads S.W. to C. Spartivento, the other S.E. to C. Leuca.

II. THE SUB-APENNINES—

1. *The Italian* include, on the western slope, the Tuscan and Roman, and to the S.E. of Naples, Vesuvius, an isolated volcanic mountain, 3,947 feet; on the Eastern slope, Monte Gargano North of the Gulf of Manfredonia, and the Tarentine to the South-east.

2. *The Sicilian* comprise three chains meeting in the centre of the island, and terminating at their other extremities in three capes. Their highest point, Etna, a volcano, is 10,874 feet.

3. *The Sardo-Corsican* culminate in Sardinia at M. Genargentu 6,293 feet, in the centre of the island; in Corsica at M. Rotondo 8,767 feet, also in a central position.

The Apennines have no glaciers, and in their southern portion are volcanic. The Insular Apennines are more elevated than the principal chain.

§ 24. THE HELLENIC SYSTEM, South of the Lower Danube, of the Save, and of the Kulpa, an affluent of the Save, is composed of three principal chains.

I. THE DINARIC ALPS, stretching in a south-easterly direction along the shore of the Adriatic, from the right bank of the Kulpa to M. Tchar-Dagh 9,843 feet, the source of the Vardar.

II. THE HELLENIC ALPS, extending southward from M. Tchar-Dagh (or Scardo) to Cape Matapan in the Morea, and comprising—

1. *The Macedonian Chain* (Bora-Dagh), to the source of the Salembria.

2. *The Pindus Chain*, the highest portion of the Hellenic Alps, containing Mts. Parnassus 5,906 feet, Helicon 4,593 feet, and Citheron 4,265 feet, to the Isthmus of Corinth, whence it spreads over the Morea in five branches, the highest of which are, Cyllene in the North, and Taygetus 7,904 feet, in the South, to Cape Matapan.

The Hellenic Alps throw out several spurs to right and left, the principal of which is detached from the Pindus chain, and runs from West to East, between the Vardar and Salembria, under the name of Olympus (Lacha) 9,749 feet.

III. THE BALKANS, with a general direction from West to East, extend from M. Tchar-Dagh to the source of the Maritza, thence

under the name of the Hæmus range, or Balkans proper, to the Black Sea. Their average height is above 7,000 feet, diminishing, however, in the latter part of their course. Near Selimno the chain separates into three branches, of which the northern runs parallel to the coast terminating at C. Kalakria, the central ends at C. Emineh, and the southern at C. Faranaki, the north-eastern extremity of the Bosphorus.

Many spurs are detached from the Balkans, one of which to the N., between the Maritsa and Isker, forms the narrow pass of the Iron-gates; another to the S., between the Vardar and Struma, enters the peninsula of Chalcedicum, and trifurcates, forming three smaller peninsulas—the most easterly of which is M. Athos 6,778 ft.

§ 25. THE HERCYNIO-CARPATHIAN SYSTEM is situated between the Rhine, the Danube, and the Dneister, comprehending, on the West, the Hercynian mountains, from the Schwarzwald on the South to the most southerly point of the Moldau, an affluent of the Elbe on the North; and on the East, the Carpathian mountains.

I. THE HERCYNIAN GROUP consists of four principal chains, detached from the knot of the Fichtelberg.

1. *The chain South-west of the Fitchtelberg*, containing the Franconian mountains, or *Fichtelgebirge*, the Swabian or *Rauhe* Alps, and the Black Forest or *Schwarzwald*, to the Rhine.

2. *The chain South-east of the Fichtelberg*, the Bohemian Forest, to the southernmost point of the Moldau.

3. *The chain North-east of the Fichtelberg*, the Erzgebirge, or western Sudetes to the Elbe.

4. *The chain North-west of the Fichtelberg*, including the Franconian and Thuringian Forests, and the Harz, from the source of the Maine to the source of the Aller, an affluent of the Weser. Spurs are detached westward from the northern part of the Franconian Forest, which form the southern and western boundary of the basin of the Weser, and comprise the Rhöngebirge, the Vogelsberg, the Eggegebirge, and the Teutoberger Wald.

II. THE CARPATHIAN MOUNTAINS consist of three principal chains, detached from the knot of the Schneeberg, North-east of Bohemia, at the source of the March, or Morava.

1. *The chain North-west of the Schneeberg*, the central part of the Sudetes, or the Riesengebirge and the mountains of Lusatia, to the Elbe.

2. *The chain South-west of the Schneeberg*, or the mountains of Moravia, to the most southerly point of the Moldau, S.E. of Bohemia.

3. *The chain East of the Schneeberg*, containing—

(1.) The Sunken mountains, or eastern portion of the Sudetes, to the source of the Oder.

(2.) The Central Carpathians to the source of the Dneister, S.E. of Galicia. Nearly in the middle of this chain rises the elevated group of the Tatra, the culminating point of which is 8,779 feet.

The Central Carpathians throw out several spurs. (1.) Two chains to the South-west, called the Little or Western Carpathians; one from the source of the Oder to the Danube at Presburg; the other, from the source of the Waag to the bend formed by the Danube, North of Buda. (2.) The Eastern Carpathians on the borders of Transylvania to the Danube, at the Iron-gates. The Western, Central, and Eastern Carpathians thus form a semicircle on the North of the Middle Danube.

§ 26. THE FRENCH SYSTEM extends on the South-west to the Garonne and the canal of Languedoc; on the East to the Rhone and Rhine.

The principal chain, which links together all the others, is of no great elevation. It inclines from N.E. to S.W., and comprehends (1.) The Southern Vosges, a low chain from the source of the Ill to that of the Moselle. (2.) The Faucilles or Sickle mountains, to the source of the Saône. (3.) The Plateau of Langres, S. of the Meuse and E. of the Marne, to the canal of Burgundy. (4.) The Côte d'Or, E. of the Seine and Yonne, to the Canal du Centre. (5.) The Cevennes, to the Canal du Midi; culminating points, M. Mezen 5,795 feet, and M. Lozère 4,889 feet.

From these mountains are detached the following branches:—

1. *The Vosges proper*, situated in France and in Rhenish Bavaria, between the Rhine and Moselle, and North of the Ballon d'Alsace.

2. *East of the Plateau of Langres and of the Meuse*, a chain to the North comprising the East Argonne, the East Ardennes, and the Eifel, from the Moselle to the source of the Roer, an affluent of the Meuse.

3. *From the centre of the Plateau of Langres*, a chain West of the Meuse, containing the Mts. of the Meuse, the West Argonne, and the West Ardennes, to the plateau of St. Quentin.

4. *North-west of the Côte d'Or*, a series of heights, separating the slope of the English Channel from that of the Atlantic, which passes by the hills of Morvan and the plateau of Orleans, and follows the course of the mountains of Arrée to C. St. Matthieu.

5. *From the Cevennes*, the mountains of Forez, between the Loire and its affluent the Allier.

6. *From the Cevennes*, at the source of the Lot, an affluent of the Garonne, a range of mountains separating the basins of the Loire and Garonne. These are, the mountains of Margeride; those of Auvergne in the departments of Cantal and the Puy-de-Dôme, the loftiest in the interior of France, culminating in the cone of Mont d'Or 6,188 feet, and with Cantal 6,093, and Puy-de-Dôme 4,806; the mountains of Limousin; and the plateau of Langres.

§ 27. THE BRITISH SYSTEM extends from Land's End South, to Duncansby Head North, and comprehends the mountains of Great Britain, Ireland, and the adjacent isles.

Scotland.

I. NORTHERN.—Extending from Fort George in Moray Frith N.E., to the Sound of Mull S.W., and lying W. and N.W. of Glenmore. It consists of rugged moor and table land, with scattered rocks and mountain-ridges sloping abruptly towards the western coast, where the highest masses occur. Ben Attow E. of Loch Alsh 4,000 feet, Ben Mohr 3,220 feet; and more to the eastward, Ben Wyvis, W. of Cromarty Frith, 3,270 feet, are the highest points.

II. CENTRAL.—Nearly the whole of this part of Scotland is occupied by mountain ranges and masses, among which are the highest in the British Islands. They comprise—

1. *The Grampians*, the principal chain, extending from East to West across the island, in a course of nearly 100 miles, and containing the culminant point of the system, Ben Nevis, 4,368 feet, situated at their eastern extremity, near Loch Linnhe.

2. *The Northern Grampians or Cairngorm Mountains*, detached to the North, near the head of the valley of the Dee, and containing

summits little inferior to those of the principal chain, Ben M'Dhui being 4,305 feet, and Cairntoul 4,223 feet.

3. *The Monadh Leadh Mountains*, a broad and barren range, attaining an elevation of 2,000 feet.

4. *A series of ridges, sometimes called the Southern Grampians*, extending southward from Ben Nevis to the Frith of Clyde; they are of wild and varied character, and contain masses of considerable height; Ben Cruachan, the loftiest, is 3,390 feet.

5. *A mountain region, East of the Southern Grampians*, between Loch Lomond and Strathmore, forming the eastern termination of the highlands, and numbering many lofty summits. Ben Lawers, West of Loch Tay, 3,945 feet, and Schehallion, North of it, 3,514 feet; Ben More, South of Loch Dochart, 3,818 feet; and Ben Lomond, East of Loch Lomond, 3,191 feet.

6. *The Sidlaw Hills* to the North, and the *Ochill Hills* to the South, between Strathmore and the German Ocean.

III. SOUTHERN.—This division comprises the greater part of the *Lowlands* of Scotland; it contains, however, elevations, which, though inferior to those of the North and West, or the *Highlands*, are yet of considerable extent and height.

The Cheviot Hills, the principal chain, runs first East and West between the river Tweed and the Solway Frith, forming the boundary between England and Scotland; it then turns northward to Hartfell and Leadhill, near the sources of the Clyde and Annan, whence diverge several branches, the principal of which are—

1. *The Moorfoot, Lammermoor, and Pentland Hills* to the N.E.

2. *The Lowther Hills* to the North-west.

3. *The Hills of Galloway* to the South-west, separating the Friths of Clyde and Solway.

England.

I. NORTHERN.—*The Pennine Chain*, the most important range of hills in England, springs from the South-west side of the boundary line of the Cheviots. It is about 180 miles in length, of considerable but varying breadth, and of moderate elevation, with a few summits rising above the general level. Of these, Cross Fell 2,901 feet, Wharnside 2,384 feet, Ingleborough 2,361 feet, and Pen-y-gent 2,270 feet, are the highest. It runs southward through Lancashire and Yorkshire—spreads in North Derbyshire into the group called

the Peak—the highest points of which are, Kinderscout 1,981 feet, and Axe-edge Hill, the source of the Dove, 1,751 feet; and still pursuing a southerly course to *Weaver Hill*, in Staffordshire, 1,154 feet, sinks down to the plain North of the Trent.

1. *The Cumbrian Mountains* are detached from the western side of the Pennine chain. They form a remarkable group or *knot*, extending over great part of Cumberland and Westmoreland, containing the highest English mountains, and enclosing scenery of exquisite beauty and variety. Culminant points, Scawfell 3,166 feet, Helvellyn 3,055 feet, Skiddaw 3,038 feet, and Coniston 2,597 feet.

2. On the eastern side of the Pennine chain, beyond the York plain, stretch *the North York Moors*, the highest part of which, Burton Head, is 1,485 feet; *the York Wolds*, which do not exceed 800 feet in height; and South of these, separated from them by the Humber, the *Lincolnshire Wolds*.

II. CENTRAL.—The central region of England lies between the Trent and the Thames. It consists chiefly of undulating plains, interspersed with ridges of low hills. The highest of these extend in a southward course on either side of the fertile valley of the Severn; its *Eastern* border being formed by the *Clent Hills*, about 1,000 feet, *the Lickeys* 800 feet, and the *Cotswold Hills*, the highest point of which, Cleeve Hill, is 1,134 feet; with the *Edge Hills*, 800 feet, still more to the East; its *Western* by *Wenlock Edge*, the *Clee Hills* 1,805 feet, and the *Malvern Hills*; culminant point, Hereford Beacon 1,444 feet. North of these ranges is the *Wrekin*, an isolated hill, 1,320 feet in height.

South-east of the Wash, *the East Anglian Heights* run in a S.W. direction through the eastern plain, forming in their southern portion the *Chiltern Hills*, which reach the banks of the Thames. The South-east boundary of the eastern plain is marked by some inconsiderable elevations, including Epping Forest and Langdon Hill, and terminating, North of London, in Hampstead and Highgate.

III. SOUTHERN.—England, South of the Bristol Channel and the Thames, presents a succession of hills and elevated plains, extending from the Land's End to the South Foreland.

1. *The Cornish Heights* commence at the Land's End and extend through Cornwall. They are rich in tin and copper mines, and contain also lead, and extensive quarries of granite. Culminant point, Brown Billy 1,368 feet.

2. *Dartmoor Forest*, East of the Cornish Heights, is a plateau chiefly of granite formation, the general elevation of which is about 1,200 feet. Causand Beacon, near the northern extremity, is 1,792 feet.

3. *Exmoor*, South of the Bristol Channel, rises to the height of 1,668 feet, and forms an extensive sheepwalk. Between Exmoor and the mouth of the Severn are the *Quantock*, *Polden*, and *Mendip Hills*, the latter 1,100 feet in height.

4. *The Blackdown Hills* and the *Dorset and Purbeck Heights* are situated South of Exmoor.

5. *Salisbury Plain*, in the southern part of Wilts, is a barren and treeless region, 500 or 600 feet in height, covered with short grass, and famous for the ruins of Stonehenge, the most extensive druidical remains in England. Adjoining it are the Marlborough Downs, similar to it in character.

6. To the East of the Salisbury Downs the South of England is traversed by ranges of hills running from West to East. The principal of these are the *North and South Downs*, the former of which run through N. Hants, Kent, and Surrey, to the S. Foreland, and rise at Inkpen Beacon to the height of 1,011 feet; the latter pursue a nearly parallel course through S. Hants and Sussex, rising to an elevation of from 500 to 900 feet. Between the North and South Downs, is the district called *the Weald*—once an extensive forest, now reclaimed. This district is traversed by the *Wealden Heights*, which form the watershed between the Thames and the English Channel. West of Guildford, a short ridge is detached from the North Downs, called *the Hog's Back*; it ends at Farnham.

Wales.

The Welsh mountains may be divided into Northern and Southern.

I. NORTHERN.—Containing the loftiest mountain in the southern part of Great Britain, that of *Snowdon*, which ascends in three peaks, the upper one 3,571 feet. Several other summits in this group have an elevation of from 2,500 to 3,000 feet. South of the Snowdon chain, the *Berwyn Hills* stretch from Llangollen, in the Vale of Dee, to Cardigan Bay. Cader Idris, their highest peak, is 2,914 feet. The *Plinlimmon Range*, beginning at the mountain of that name, the source of the Severn, 2,463 feet in height, forms a boundary between North and South Wales.

2. SOUTHERN.—South of Plinlimmon, a waste and rugged mountain tract stretches to the *Epynt Hills*, which are separated by the valley of the Usk from the *Black Mountains or Forest Fawr*, the highest range in South Wales, rising at the Beacon of Brecknock to 2,862 feet. South of the Forest Fawr are the *Mountains of Glamorgan*. On the English border, *Radnor Forest*, North of the Wye, has an elevation of 2,163 feet.

Ireland.

The mountains of Ireland are found, not in continuous ranges, but in groups and masses interposed between the central plain and the sea. On the western side of the island a strong iron-bound coast forms a defence against the waves of the Atlantic; on the east, the shore is low and level. The Irish mountains may be divided into South-eastern and North-western.

I. SOUTH-EASTERN.—From Dublin Bay E., to Galway Bay W.

1. *The Wicklow Mountains*, stretching South of Dublin to the confluence of the Barrow and Nore, an extensive mountain region distinguished for beauty of scenery. Highest point, Lugnaquilla 3,039 feet.

2. *Mountains of Cork and Kerry*, extending over the counties of the same name. Commencing from the East—the *Slievennan*, *Knockmeildown*, and *Galty* ranges, run in nearly parallel lines, of from 2,000 to 3,000 feet in height, across the South of Kilkenny, Tipperary, and Limerick. The Kerry mountains form several narrow peninsulas, between which the sea penetrates in deep and narrow inlets. The M'Gillicuddy's reeks, culminant peak, Carrantuohill 3,404 feet, the highest in the island, and the mountain of Mangerton 2,754 feet, lie between Kenmare and Dingle Bays, and West and South of the Lakes of Killarney. North of these is Mount Brandon 3,120 feet, between Dingle Bay and the mouth of the Shannon. Hungry Hill and the Caha mountains form the peninsula between Kenmare and Bantry Bays.

II. NORTH-WESTERN, from Galway Bay South-west to Belfast Lough North-east.

1. *The Mayo and Galway Mountains*, divided by Clew Bay into two parts—the Southern, containing *the Connemara group*, highest point, Muilrea 2,680 feet; the Northern, the *Nephin Beg* moun-

tains, and *those of Achil Island,* separated from the mainland by the narrow channel of Achil Sound. Nephin mountain is 2,639 feet, and the highest summit of the Nephin Beg range 2,368 feet.

2. *The Mountains of Donegal,* consisting of chains and masses, pursuing a general direction from South-west to North-east. They are of considerable height, Errigal, the loftiest, being 2,462 feet. Some high ridges run South of L. Foyle through the county of Londonderry. Sawell, the highest point, 2,236 feet.

3. *The Mountains of Antrim,* between L. Neagh and the North Channel; they are highest upon the coast, forming on the North-east the promontory of Fair Head, and attain an elevation of from 1,500 to 1,700 feet.

4. *The Mourne Mountains,* on the Eastern coast—between Dundalk and Dundrum Bays—rise at Slieve Donard to an elevation of 2,796 feet above the sea.

North-eastern Europe.

§ 28. THE SCLAVONIC OR SARMATIAN SYSTEM comprises the elevations of the interior of Russia. These are low hills, scattered over a vast extent of surface.

1. *The Chemokonski Hills,* detached from the Ural mountains, at the source of the Petchora, and extending West towards L. Onega.

2. *The Valdai Hills,* South of St. Petersburgh, extending along the western side of the basins of the Volga and Dneiper, to the source of the Dneister.

3. *The Volga Hills,* a low chain separated from the Valdai at the source of the Volga, and taking a south-easterly course, between the Don and Volga, to the Kuban.

4. *The Olonetz Hills,* commencing at the junction of the Chemokonski and Valdai chains, and stretching North-west of L. Onega towards the mountains of Lapland.

§ 29. THE SCANDINAVIAN SYSTEM. — The principal chain extends from North to South under the general appellation of Dovrefield Mountains, or Scandinavian Alps. It commences near North Cape, separating Sweden from Norway as far as the source of the Glom-

men, where it bifurcates, sending one branch South-west, and another South-east, forming the framework of two smaller peninsulas, divided by the Skagerrack and Cattegat. This system contains—

1. *The Kiolen Mountains* in the North; culminant point, Sulitelma 6,200 feet. The northern part of the Kiolen mountains, with the eastern branch between the Tana and Tornea, takes the name of *Lapland Mountains.*

2. *The Dovrefield Mountains*, properly so called, in the centre, consisting of broad and elevated plateaux, intersected by narrow valleys. Highest point, Schneehattan 7,620 feet.

3. *The Hardanger* or *Langfield Mountains*, South, dividing near the sources of the Glommen into two branches. 1. The Langfield proper, which continues to skirt the Atlantic, preserving the features of the main chain, and terminates at C. Lindesnaes, or the Naze. Highest point, Skagstolstund 8,670 feet. 2. The South-eastern branch, consisting of inconsiderable heights and small plateaux, forming the Seves or Tifveden ridge, which runs between Lakes Wener and Wetter, and joins the Smaland plateau, terminating at C. Falsterbo. It attains an elevation of about 900 feet.

§ 30. THE TWO SYSTEMS OF THE URAL AND CAUCASUS MOUNTAINS belong equally to Europe and Asia.

I. THE URALIAN SYSTEM extends from the Arctic Ocean to the Caspian Sea, and comprises—

1. *The Northern part of the Ural Chain*, from the Strait of Waigatz to the source of the Petchora.

2. *The Southern portion*, rather more elevated than the northern, and rich in mines of gold, copper, and iron. Its culminant point, the Iremel Tau, rises to the height of 4,700 feet. Near the source of the river Ural the chain bifurcates, sending an inconsiderable branch westward into Europe, terminating on the bank of the Volga, in the low ridge of the Obtschei Sirt, and another into Asia, North of the Sea of Aral.

II. THE CAUCASIAN SYSTEM stretches from the Isthmus of Yenikale to the Caspian Sea, and culminates in Mt. Elburz, the source of the Kuban and the Terek, 18,373 feet in height.

PLAINS.

§ 31. Europe is divided, by a line drawn from the mouth of the Rhine to that of the Dneister, into a *North-eastern lowland*, interspersed with a few detached hill ranges, and a *South-western highland*, intersected by plains of limited extent.

I. NORTH-EASTERN.

1. *The Sarmatian Plain*, bounded by the Arctic Ocean N.; by the Ural Mountains and Kirghis Steppes E.; by the Caspian Sea, Caucasus, Black Sea, and Carpathians, S.; and by the Vistula and Scandinavia, W. It is separated into—1. The Arctic plain; 2. The shores of the Baltic between the White Sea and the Gulfs of Bothnia and Finland, comprising the rocky lake district of Finland; and South of the Gulf of Finland, the rich corn-producing plain of the Baltic; 3. The plain of Central Russia, between two strips of high ground, watered by the upper courses of the Bug, Dnieper, Don, and Volga, and consisting of extensive marshy regions. 4. The shores of the Black Sea, the great *Steppe* plain of Russia.

2. *The Scandinavian Plain*, occupying the eastern side of that peninsula.

3. *The Germanic Plain*, from the Vistula to beyond the Ems, and bounded on the South by the Harz and Erzgebirge mountains.

II. SOUTH-WESTERN.

1. *The French Lowland.*—Westward of the mouth of the Rhine, the north-eastern lowland is narrowed into a maritime tract along the northern coast of Belgium and France. From Brittany to the Pyrenees the French lowland forms the basin of the Loire and of the Garonne, south of which is the sandy plain called the Landes.

2. *The Plain of Provence*, or Valley of the Lower Rhone, extending northwards to the Durance.

3. *The Plain of Lombardy*, traversed by the Po and the Adige.

4. *The Plains of the Italian Peninsula*, comprising—on the West the Plain of Tuscany, the Roman Campagna, the Pontine Marshes, the Plain of Naples; on the East the Apulian Plain, South of Mt Gargano.

5. *The Plain of the Middle Rhine* between Basle and Mayence.

6. *The Plain of the Lower Danube.*—1. The Upper Hungarian Plain, from Presburg to the southern bend of the Danube. 2. The Lower Hungarian Plain, traversed by the Theiss. 3. The Wallachian Plain, connected on the West with the Hungarian Plain, and on the East joining the plain of Southern Russia.

7. *The Plain of Albania*, a narrow coast plain on the western coast of the Adriatic.

8. *The Plains of the Spanish Peninsula.*—1. The valley of the Ebro, opening into the Mediterranean on the North-west. 2. The Andalusian lowlands, or basin of the Guadalquiver, small coast plains at the mouths of the Douro and Tagus, West; the Guadiana and Guadalquiver, South; and the Segura and Tucan, East.

§ 32. VOLCANOES are situated in the North and South of Europe, and with one exception, are found in islands.

North.—Mt. Hecla, and several others, in Iceland: Mt. Beeren, in Jan Mayen; Sarytcheff, in Nova Zembla.

South.—Mt. Vesuvius, in Italy; Mt. Etna, in Sicily; Stromboli and others in the Lipari Is.: Pico, in the Azores.

Submarine volcanoes occur near Sicily, in Santorin I., one of the Cyclades, and in the Azores. Extinct volcanoes are found in Auvergne; in the Eifel on the Rhine; in the Black Forest, and in many places in Western Germany.

DRAINAGE.

§ 33. PRIMARY WATERSHEDS.—Europe has a slope to the Atlantic, a slope to the Arctic Ocean, and a slope to the central basin of the Eastern Continent. It is thus traversed by two primary watersheds. The ridge line of the first, commencing at North Cape, passes through the Lapland Mts., the Olonetz Mts., the Chemokonski Hills, and the northern portion of the Ural Mts.; that of the second, commencing at the Olonetz Mts., is continued through part of the Valdai Hills, the Volga Hills, the northern foot of the Caucasus, and along this range

to the Caspian Sea. The other watersheds are secondary, tertiary, or quaternary.*

Europe divided into Two Slopes.

§ 34. Europe, viewed apart from the two other divisions of the Eastern Continent, may be divided into two principal slopes, by a general watershed which extends from the Strait of Waigatz to the Straits of Gibraltar.

The ridge line of this watershed passes from North-east to South-west through the following points:—

I. The northern part of the Ural Mts., turning to the West at the source of the Petchora, along the Chemokonski Hills, South of the Petchora, the northern Dwina and the river Onega; and descending to the South-west by the Valdai Hills, between the southern Dwina and the Dneiper.

II. Entering the Austrian empire, between the Vistula and Dneister, it proceeds westward by the Central Carpathians to the source of the Oder; by the Eastern Sudetes to the knot of the Schneeberg, the source of the Morava; by the Mts. of Moravia to the Moldau, an affluent of the Elbe; by the Bohemian Forest to the knot of the Fichtelberg, the source of the Maine; through Germany proper, by the Fichtelgebirge, to the source of the Altmuhl, an affluent of the Danube; and by the Suabian Alps to the source of the Danube. Here it turns southward from the centre of the Black Forest; by the Algavian Alps to the Inn; crosses Switzerland by the Grison Alps to the knot of Mt. Maloia, the source of the Inn; thence runs westward by the Lepontine Alps to the St. Gothard, the source of the Rhone; along the Bernese Alps;

* A watershed consists of a series of elevations, separating the streams which flow in one direction from those that flow in another. These elevations are often inconsiderable, the mere convexity of a plain being sufficient to throw the streams into different directions. According to their relative importance watersheds are called *primary*, *secondary*, *tertiary*, or *quaternary*; *primary* separate two principal slopes; *secondary* separate the parts of a principal slope; *tertiary* indicate the basin of a river; *quaternary* the part drained by an affluent.

over the Jorat N. of the Lake of Geneva, and by the South-west part of the Canton of Friborg to the French frontier. From this point its course is first *northward* through the Jura between the Doubs in France, an affluent of the Saône; and the Aar in Switzerland, an affluent of the Rhine; and by the Southern Vosges, a chain of slight elevation between the Doubs and Rhine to the Ballon d'Alsace, the source of the Moselle; next *westward* from the Fancilles Mts., between the Saône and Moselle to the Eastern Argonne; afterwards *South*, from the Plateau of Langres to the Canal of Burgundy; through the Côte d'Or, E. of the Seine and Yonne to the Canal du Centre; by the Cevennes to the Canal du Midi; and by a northern and inconsiderable spur of the Pyrennees to the source of the Ariege, an affluent of the Garonne.

III. The ridge line between France and Spain, along the Pyrennees, enters Spain near the river Bidassoa; proceeds West by the Cantabrian Pyrennees to the source of the Ebro; thence descends towards the South by the central chain to a point between C. Palos and C. Gata; and by the Sierra Nevada to C. Tarifa, on the Straits of Gibraltar.

North-eastern Europe.

§ 85. North-eastern Europe comprises—1. A slope to the Arctic Ocean. 2. A slope to the Caspian Sea. 3. A slope to the Northern shore of the Black Sea. 4. A slope to the Eastern shore of the Baltic. 5. Three slopes of Scandinavia.

§ 86. THE SLOPE TO THE ARCTIC OCEAN extends from North Cape in Mageroe I. to the Ural Mountains. Its watershed is formed by the Lapland Mts., the Olonetz Hills, the Chemokonski Hills, and the Northern part of the Ural Mts. to the Strait of Waigatz.

This slope is an extensive plain, inclining gradually to the coast, varied only by the slight undulations which determine the course of its streams. It is occupied by barren steppes, forests, and marshes, interspersed with scanty pasturage. The climate is very cold, the ground during nine months of the year being covered with snow, and spring and summer lasting scarcely three months.

The inhabitants are a rude and wandering race, whose only wealth consists in herds of reindeer. It belongs to Russia, with the exception of its western extremity, which is in Norway, and contains the basins of the Petchora, Mezen, Northern Dwina, Onega, and Tana rivers.

1. THE PETCHORA issues from the angle formed by the N. Ural Mts. and the Chemokonski Hills, and falls into the Arctic Ocean.

2. THE MEZEN, after a short course, falls into the White Sea.

3. THE NORTHERN DWINA, formed by two streams, the Souchona and the Jug, rising in the Chemokonski Hills, falls into the White Sea after passing Archangel, a port free from ice only for about three months in the year.

4. THE ONEGA rises in the Olonetz Mts., and falls into the White Sea.

5. THE TANA rises in the Lapland Mts., separates Russia from Norway, and falls into the Arctic Ocean.

COAST.—This is alternately low and precipitous; its principal indentations are Tcheskaia Bay, and the White Sea, with its branches, the gulfs of Archangel, Onega, and Kandalask.

§ 37. THE SLOPE TO THE CASPIAN SEA is defined by a ridge line passing through the Southern part of the Ural Mts., the Chemokonski Hills, the Eastern part of the Valdai Hills, the Volga Hills, and the Northern part of the Caucasus to the Caspian Sea.

This slope, comprising the easternmost part of Europe, is mountainous only in the North-east, consisting elsewhere of vast and dreary plains. It is traversed by the longest river in Europe, the *Volga*, and contains also the basins of the *Ural*, *Kouma*, and *Terek*.

1. THE URAL rises in the Ural Mts., separates Europe from Asia, receives the Ilek, and falls into the Caspian Sea.

2. THE VOLGA, 1990 miles in length, rises in the Valdai Hills, is navigable 150 miles below its source, and falls into the Caspian Sea by 70 mouths forming a large delta, in which Astrakhan is situated. Its affluents are, on the left, the *Tvertza*, *Mologa*, *Cheskna*, and *Kama*; on the right, the *Oka*, which receives the *Upa*; and the *Moskowa*, watering Moscow, the ancient capital of Russia.

3. THE KOUMA issues from the northern foot of the Caucasus and flows into the Caspian Sea.

4. THE TEREK rises in the centre of the Caucasus and falls into the Caspian Sea.

§ 38. THE SLOPE TO THE NORTHERN SHORE OF THE BLACK SEA commences on the East near the Strait of Yenikale, and ends at the watershed between the Dnieper and the Dneister. It is bounded by the North-west portion of the Caucasus, by the Volga and Valdai Hills, and by a series of heights extending from the source of the Dneister between that river and the Dnieper to the sea. It contains the basins of the *Don* and *Dnieper*, separated by a ridge line indistinct in the North, but which in the South-eastern part of the Crimea becomes very elevated, appearing a continuation of the Caucasus. The small basin of the *Kuban* flowing into the Black Sea is also comprehended in this slope.

1. THE DON, 746 miles long, rises in the small lake of Ivanow, near Epifan, receives on its right the *Donets*, and falls into the Sea of Azof, near the fortified town of Azof.

2. THE DNIEPER, 1,000 miles long, rises in the Valdai Hills, and falls into the Black Sea near Cherson, a fortified port, the capital of the Ukraine. Its affluents are, on the left, the *Desna* and *Workla*; on the right, the *Beresina*, *Pripet*, and *Bug*.

The basin of the Don consists chiefly of barren steppes, occupied by Cossacks and their herds and flocks; that of the Dnieper is fertile and well peopled. The Crimea has the climate of N. Italy.

§ 39. THE SLOPE TO THE EASTERN SHORE OF THE BALTIC extends from the Eastern limit of the basin of the Tornea on the North, to the Eastern limit of the basin of the Vistula on the South. It is defined by the Lapland Mts., by the Olonetz and Valdai Hills, and by almost imperceptible elevations stretching along the right bank of the Vistula to the sea.

The slope to the Eastern shore of the Baltic is flat and marshy, having in its Northern part no streams deserving notice, but con-

taining towards the South numerous lakes and some considerable rivers. It belongs to Russia, with the exception of its Southern extremity, which is in Prussia.

1. LAKE LADOGA receives on the East the river *Svir*, which issues from Lake Onega, and on the South the *Volchov*, from Lake Ilmen; and sends into the Gulf of Finland the *Neva*, which washes St. Petersburg, the capital of Russia.

2. LAKE PEIPUS sends into the Gulf of Finland the *Narva*.

3. THE SOUTHERN DWINA rises in the Valdai Hills and falls into the Gulf of Riga near the port of that name.

4. THE NIEMEN has its source near Minsk, and terminates at the Curische Haff, near Memel, in the Baltic.

5. THE PREGEL rises in Eastern Prussia, and falls into the Frische Haff, communicating with the Gulf of Danzig.

COAST.—This is slightly elevated, and penetrated deeply by gulfs and salt-water lagunes; the former are those of Finland, Riga, and Danzig; of the latter, the most remarkable are the Frische Haff, and the Curische Haff.

§ 40. THE SCANDINAVIAN PENINSULA comprises an Eastern slope, a Southern slope, and a Western slope, besides a small portion of the slope of the Arctic Ocean.

The Eastern or Swedish slope of Scandinavia to the Baltic extends from the Tornea on the North to C. Falsterbo on the South, and is defined by the Lapland, Kiolen, and Séves mountains. It is broad and flat, traversed by numerous streams running from North-west to South-east, and forming a multitude of lakes. The land is poor, and thinly inhabited. The principal rivers are the *Tornea* and the *Dal*.

1. THE TORNEA forms the boundary between Sweden and Russia, and falls into the Gulf of Bothnia.

2. THE DAL flows through Dalecarlia and falls into the Gulf of Bothnia.

3. LAKE WETTER sends the Motala through a series of small lakes into the Baltic.

4. LAKE MAELAR receives numerous streams, and communicates with the Baltic by a channel on which is Stockholm, the capital of Sweden.

COAST.—It is low and sandy in the North, rocky and of moderate elevation towards the South, and everywhere pierced by small inlets and fringed with islands. The ports are closed with ice during the winter.

Southern Slope.—This slope embraces the southern part of Sweden and Norway, and extends from C. Falsterbo East, to the Naze West. It is washed by the Sound, the Cattegat, and Skagerrack, and bounded in Sweden by the Séves Mts., and plateau of Smaland; and in Norway by the Dovrefield and Langfield Mts. It is the most beautiful and fertile portion of Scandinavia, and contains two-thirds of the entire population. The principal rivers are, in Sweden the *Gotha*, in Norway the *Glommen*.

1. THE GOTHA issues from Lake Wener and falls into the Cattegat.

2. THE GLOMMEN, the longest river in the peninsula, rises in the Langfield and falls into the Skagerrack.

COAST.—This is very irregular, intersected with rivers and deep bays.

The Western or Norwegian slope of Scandinavia to the Atlantic extends from North Cape to the Naze. It is bounded by the Lapland, Kiolen, Dovrefield, and Langfield Mts., and is very rapid, forming a narrow coast indented by numerous deep and narrow bays or *fiords*, but containing no rivers deserving mention.

Central Europe.

§ 41. Central Europe is bounded on the North-east by the basins of the Vistula and Dneister, and on the South-west by the Pyrennees. It comprises four slopes to the North and North-west, and five slopes with a general inclination to the South and South-east. On the *North* and *North-west* are—1. A slope to the Southern shore of the Baltic, including the basin of the Vistula on the East, and extending to C. Skagen, in the Danish peninsula. 2. A slope to the North Sea, from C. Skagen to C. Grisnez, in the Pas de Calais. 3. A slope to the English Channel, from C. Grisnez to Point St. Matthieu, near Brest. 4. A French slope to the Atlantic, from

Point St. Matthieu to the Pyrennees. On the *South* and *South-east* are—1. A slope to the Gulf of Lyons, or a French slope to the Mediterranean, from the Eastern termination of the Pyrennees to a point including the basin of the Var. 2. Three slopes of the Italian peninsula, from the Eastern boundary of the basin of the Var to the Gulf of Trieste, beyond the Isonzo. 3. A slope to the Eastern shore of the Ionian and Adriatic seas, from the Eastern limit of the Isonzo to C. Matapan, in the Morea. 4. A slope to the Sea of Marmora and the Archipelago, as far as the North-east extremity of the Bosphorus. 5. A slope to the Western shore of the Black Sea, from the North-east extremity of the Bosphorus to the Northern boundary of the basin of the Dneister.

§ 42. THE SLOPE TO THE SOUTHERN SHORE OF THE BALTIC is formed on the East by the scarcely distinguishable watershed between the Vistula and Niemen, and by the prolongation of the Valdai Hills between the Vistula and Dnieper; on the South by the Central Carpathians and the Western Sudetes; on the West by the Central Sudetes and a faintly marked watershed to C. Skagen.

This region is generally flat, abounding in forests, pasturage, and moorlands. The climate is cold and damp, the soil not naturally fertile, but well-cultivated, and producing much corn. It contains the basins of the Vistula and the Oder, separated by very slight elevations.

1. THE VISTULA, 460 miles in length, rises in the Central Carpathians, forms the boundary of Gallicia, passes Cracow, enters Poland, washes Warsaw, and in western Prussia divides into two branches—that to the left falling into the Gulf of Danzig; that to the right terminating in the Frische-Haff. It receives on the left the *Pilica* and the *Bzura*; on the right, the *San*, the *Wieprz* and the *Bug*, with its tributaries the *Pelten*, *Narew*, and *Oukra*.

2. The Oder, 497 miles in length, rises in the Eastern Sudetes, passes Breslau in Silesia, Frankfort-on-the Oder in Brandenburg, Posen in Prussian Poland, Stettin in Pomerania, and falls into the Baltic by three mouths. Its affluents are, on the left, the *Oppa*, *Bober*, and *Neiss*; on the right, the *Olsa* and *Wartha*. The basin of the Vistula was the centre of the ancient kingdom of Poland, that of the Oder belongs almost entirely to Prussia.

Coast.—This is low and indented, consisting chiefly of sandhills, amidst which the rivers, having little fall, spread out into lakes or bays enclosing islands.

3. The Danish Peninsula forms part of the slope to the southern shore of the Baltic, and of the slope to the North Sea. It is a low sandy country, intersected by numerous lakes and small rivers, and protected from the encroachments of the sea by artificial embankments. It terminates on the North in C. Skagen (the Scaw), and on the South is separated from Holstein by the *Eider*, which falls into the North Sea. It comprises Jutland on the North, and Schleswig on the South.

Islands.—The island of Rugen and some of the Danish islands belong to this slope.

§ 43. The Slope to the North Sea, or German Ocean, is bounded on the East by a slightly undulating watershed, and by the Central Sudetes; on the South by the Moravian Mts., the Bohemian Forest, the Franconian Mts., the Suabian Alps, the Black Forest, the Alps of Constance, the Lepontine Alps, the Bernese Alps, and the Jorat; on the West by the Jura, the Southern Vosges, the Faucilles Mts., the northern part of the plateau of Langres, the Mts. of the Meuse, the West Argonne, the West Ardennes, the plateau of St. Quentin, and a low watershed ending at C. Grisnez in the Pas de Calais. It contains the basins of the Elbe, Weser, Ems, Rhine, Meuse, Scheldt and Yser.

1. The Elbe, between 600 and 700 miles in length, rises in the Riesengebirge, and forms an upper and lower basin; *the upper* bounded on the S.E. by the Moravian Mts., S.W. by the Bohemian

Forest, N.W. by the West Sudetes, N.E. by the Central Sudetes; *the lower*, East, by low hills ending at C. Skagen; West, by the Franconian Mts., the Thuringian Forest, the Harz, and by heights diminishing to the sea. Both basins belong to the Germanic Confederation; the upper comprehending the kingdom of Bohemia, in the Austrian empire; the lower, containing the kingdom of Saxony, central Prussia with its capital Berlin, the eastern part of Hanover, several German grand duchies and principalities, and the free city of Hamburg. Affluents—

LEFT.	RIGHT.
	1. *The Iser*, from the Riesengebirge, joins the Elbe at Alt-Bunzlau.
1. *The Moldau*, from the Bohemian Forest, receives the Luschnitz, the Woltawa, and the Beraun, washes Prague, and joins the Elbe at Melnik.	
2. *The Eger*, from the Fichtelgebirge, joins the Elbe at Lowositz.	
	2. *The Schwarts Elster* joins the Elbe above Wittenberg.
3. *The Mulde*, from the Erzgebirge, ends below Dessau.	
4. *The Saal*, from the Fichtelgebirge, receives the Ilm, Unstrutt and White Elster.	
	3. *The Havel*, from the Lakes of Mecklenburg, receives the Spree, which washes Berlin, and joins the Elbe at Sandon.

II. THE WESER, 300 miles long, is formed from the Werra rising in the Thuringian Forest, and the Fulda rising in the Rhôngebirge. Its basin is enclosed on the East by low hills, by the Harz, and by the Thuringian Forest; South, by the Rhôngebirge; West, by the Vogelsberg, Eggegebirge, and Teutoburger Wald; and by

diminishing heights. The basin of the Weser lies within the States of the Germanic Confederation. It receives on the left the *Dimel*, and on the right the *Aller*.

III. THE EMS issues from the Eggegebirge, in Westphalia, receives the *Aa*, which flows by Munster, a fortified city, famous for the treaty of 1648; and the *Haase*, which washes Osnabruck, and falls at Emden into the Gulf of Dollart.

IV. THE RHINE, 870 miles in length, rises in the St. Gothard group, from three sources called the Vorder, Mittel, and Hinter Rhein, which become at Coire one stream, flowing through the Lake of Constance, and forming, some miles below it, the famous falls of Schaffhausen. The Rhine basin may be divided into three portions—

1. The upper or Swiss basin to Basle, defined on the North and East by the Alps of Constance, the Algavian Alps, and the Grisons Alps; on the South, by the Central Alps, the Bernese Alps, and the Jorat. 2. The middle or German basin to Cologne, defined on the East by the Black Forest, Suabian Alps, Fichtelgebirge, Rhôngebirge, Vogelsberg, Eggegebirge, and Teutoburger Wald; on the West, by the Southern Vosges, the Faucilles Mts., the Eastern Argonne, the Eastern Ardennes, and the Eifel. 3. The lower or Dutch basin, defined on both sides by slight and scarcely perceptible heights. It embraces nineteen of the twenty-two Swiss Cantons, part of Germany and France, and the centre of the Low Countries. Affluents—

LEFT.	RIGHT.
	1. *The Ill*, from the Vorarlberg.
1. *The Thur*, from the Sentis.	
2. *The Aar*, from the Finster Aar Horn, crosses the Lakes of Brienz and Thun, washes Berne, Soleure, and Aarau, receives on its left the *Simmen* and *Theil*; on its right the *Emmen*, *Reuss*, and *Limmat*, and falls into the Rhine opposite Waldshut.	
	2. *The Elz*, from the Black Forest.

LEFT.	RIGHT.
	3. *The Kinzig*, terminating at Kehl.
3. *The Ill*, from the Jura, joins the Rhine near Strasburg.	
	4. *The Neckar*, from the Black Forest, washes Heidelberg, and joins the Rhine at Mannheim.
	5. *The Maine*, from the Fichtelberg, washes Frankfort-on-Maine, and enters the Rhine at Mayence.
4. *The Nahe*, from the Hundsdruck Mountains, terminates at Bingen.	
	6. *The Lahn*, from the Wester Wald, ends above Coblentz.
5. *The Moselle*, from the Faucilles Mts., washes Metz and Trèves, and enters the Rhine at Coblentz.	
6. *The Ahr*, from the Eifel.	
	7. *The Sieg* joins the Rhine at Bonn.
	8. *The Wipper* bathes Elberfeld.
7. *The Erft* ends at Dusseldorf.	
	9. *The Lippe* joins the Rhine at Wesel.

In its Dutch basin the Rhine receives no affluent of magnitude, but forms successively four arms—the *Waal*, *Issel*, *Leck*, and *Vecht*: then taking the name of *Old Rhine*, it traverses southern Holland and falls into the North Sea, by a canal dug in 1807.

V. THE MEUSE, 447 miles in length, rises in France, in the plateau of Langres. Its basin is bounded *East* by the East Argonne, the East Ardennes, the Eifel, and by diminishing heights to the Waal, near Nimeguen; *West*, by the Mts. of the Meuse,

the West Argonne, the West Ardennes, the plateau of St. Quentin; and by a watershed which terminates at the bifurcation of the Scheldt. The basin of the Meuse belongs to France, Belgium, and the Low Countries. Its affluents are, on the left, the *Sambre*, from the Ardennes, which enters the Meuse at Namur; the *Jaar*, *Dommel*, and *Merk*:—on the right, the *Cliiers*, *Ourthe*, and *Roer*.

VI. THE SCHELDT, 211 miles, rises in the plateau of St. Quentin, washes Cambray, Valenciennes, Oudenarde, Ghent, and Antwerp; entering Holland, it divides into two branches, the East and West Scheldt, which enclose the delta of Zealand, comprising the islands of North Beveland, South Beveland, and Walcheren, and fall by two broad embouchures into the North Sea—exactly opposite to the mouth of the Thames. Its chief affluents are, on the left, the *Scarpe* and *Lys*; on the right, the *Haisne*, the *Dender*, and the *Rupel*, composed of three streams, the *Senne*, the *Dyle*, and the *Nethe*.

VII. THE YSER rises near St. Omer, receives the *Yperlée*, and falls into the North Sea below Nieuport.

COAST.—Low, bordered by dunes, and broken into deep gulfs fringed with islands. A great part of the land has been won from the sea by human industry, and is protected from inundations by enormous dykes, which the inhabitants are compelled to keep constantly in repair for the security of their towns, villages, and fields. Every storm inflicts injury on some of these defences, and occasionally the mischief is irreparable, the artificial soil is undermined, and sinks beneath the waters. Thus the great Gulf of the Zuyder-Zee, formerly an inland lake, was united with the sea by the bursting of the dykes in A.D. 1225. The Dollart was formed by a similar catastrophe in 1277, and the Lake of Haarlem is now threatened with the same fate.

ISLANDS.—The Dutch islands and Heligoland belong to this slope.

§ 44. THE SLOPE TO THE ENGLISH CHANNEL is bounded on the North by a watershed passing from C. Grisnez to the plateau of St. Quentin, by the West Ardennes, West Argonne, and Mts. of the Meuse; on the East by the plateau of Langres and the northern part of the Côte d'Or; on the South by watersheds of small elevation to Point St. Matthieu. It in-

cludes some of the richest provinces of France, but the land presents no remarkable natural features. Gently sloping valleys and plains, watered by rivers flowing slowly between flat banks, are surmounted by low open plateaux. The principal river basins are those of the Somme, Seine, and Orne.

1. THE SOMME rises at Fons Somme, washes St. Quentin, Peronne, Amiens, and Abbeville, and ends near St. Valery, after a course of 93 miles.

2. THE SEINE, 400 miles in length, rises in the Côte d'Or, washes Troyes, Montereau, Melun, and Paris, the capital of France. Its affluents are, on the left, the *Yonne*, the *Loing*, the *Essonne*, and the *Eure;* on the right, the *Aube*, the *Yères*, the *Marne*, and the *Oise*, with its affluent the *Aisne*. Below Paris, the Seine waters Elbœuf and Rouen, and falls into the English Channel near Havre.

3. THE ORNE rises in the department of the Orne, washes Caen, and terminates near the rocks of Calvados in the English Channel.

COAST.—This forms two gulfs—that of St. Malo, between the peninsulas of Brittany and Cherbourg; and that of the Seine, between Cherbourg and Havre. The former is defended by granite rocks, with numerous inlets, reefs, and islands; the peninsula of Cherbourg is skirted by lofty cliffs to the mouth of the Seine; and thence to C. Grisnez, the coast consists of alternate cliffs and beach, with occasional dunes. The chief capes are those of Sillon, La Hogue, and Barfleur.

ISLANDS.—The Channel Islands, Jersey, Guernsey, Alderney, &c., belong to this slope.

§ 45. THE FRENCH SLOPE TO THE ATLANTIC is bounded on the North by low watersheds from Point St. Matthieu to the Côte d'Or: on the East by the Côte d'Or, the Cevennes, and a northern prolongation of the Pyrennees, to the source of the Ariège; on the South by the Pyrennees. The northern part of this slope is flat and fertile, covered with cultivated plains, pastures, and forests; the southern is mountainous and broken by

deep valleys, in many parts rich and productive, but interspersed with barren and sandy landes. It comprises the basins of the Vilaine, the Loire, the Sèvre-Niortaise, the Charente, the Garonne, and the Adour. The basins of the Loire and Garonne are separated by a remarkable series of elevations. The basin of the Adour is divided from that of the Garonne by the Mts. of Barèges, in the Hautes Pyrennees.

1. THE VILAINE receives the *Ille* at Rennes, and the *Oust* at Redon. The southern part of the peninsula of Brittany is formed by the basin of this river with its affluents.

2. THE LOIRE, 560 miles long, rises in the Cevennes, flows across France, dividing it North from South, washes Nevers, Orleans, Blois, Tours, Saumur, and Nantes, and falls into the Atlantic below Paimbœuf. Its affluents are, on the left, the *Lignon*, the *Allier*, the *Loiret*, the *Cher*, the *Indre*, the *Vienne*, and the *Sèvre-Nantaise*; on the right, the *Furens*, the *Nièvre*, and the *Mayenne*.

3. THE SÈVRE-NIORTAISE descends from the plateau of Gatine, washes Niort, receives the *Vendée*, and throws itself into the sea opposite the Isle of Rhé.

4. THE CHARENTE rises in the Mts. of Limousin, washes Angoulème, Cognac, and Saintes, and falls into the Atlantic below Rochefort.

5. THE GARONNE rises in the Pyrennees East of Mt. Maladetta, washes Toulouse, Montauban, and Bordeaux, below which it is joined by the *Dordogne*, and the united stream flows on to the Bay of Biscay, under the name of the *Gironde*. The other affluents of the Garonne are, on the left, the *Save* and the *Gers*; on the right, the *Ariège*, and the *Tarn*, with its tributary the *Arveyron*. The Garonne has a course of 300 miles to its junction with the Dordogne, and the Gironde 50 miles.

6. THE ADOUR descends from Mt. Tourmalet, passes Bagnères, famous for its mineral waters, and Tarbes, flows through the sterile and sandy region of the *Landes*, and falls into the Bay of Biscay, below Bayonne. Its affluents are, on the left, the *Gave de Pau*, which washes Pau, the ancient capital of Bearn, and the *Nive*; on the right, the *Midouze*.

Coast.—In the North, high and precipitous, broken by a deep curve, forming the harbour of Brest and the bay of Douarnenez; in the centre, rocky and shelving, with numerous inlets; and to the South, low and marshy, with only one small indentation, the bay of Arcachon. This coast forms one side of the Bay of Biscay.

Islands.—This slope is bordered by numerous islands, the chief of which are Ushant, Belle Isle, Noirmoutiers, Rhé, and Oleron.

§ 46. The French Slope to the Mediterranean, or slope to the Gulf of Lyons, is bounded on the East by the Maritime, Cottian, Graian, and Pennine Alps; on the North by the Bernese Alps, the Jorat, the Southern Vosges, and the Faucilles Mts.; on the West by the plateau of Langres, the Côte d'Or, the Cevennes, a northern spur of the Pyrennees, and the eastern part of the Pyrennees to the Mediterranean. It is of varied character—the basin of the Upper Rhône narrow and mountainous, that of the Saône rich in corn and vines, and that of the Lower Rhône fertile and well cultivated in the centre, but enclosed on the West by the barren rocks of the Cevennes, and on the East by the lofty ridges of the Alps. It contains the basins of the Aude, Herault, Rhône, and Var.

I. The Aude descends from the Pyrennees, washes Carcassone, skirts the Canal du Midi, crosses that of Narbonne, and ends in the Gulf of Lyons.

II. The Herault descends from the Cevennes and terminates at Agde, on the Gulf of Lyons.

III. The Rhône rises in the St. Gothard, traverses the Valais, passes through the Lake of Geneva, from which it issues at the town of Geneva, enters France, washing Lyons, Vienne, Valence, and Avignon, and forms below Arles two branches, which are again subdivided before falling into the Gulf of Lyons. The Rhône has a course of 500 miles, and is the most impetuous river in Europe. Its basin comprises—the Cantons of the Valais, Geneva, and part

of the Canton de Vaud in Switzerland, Savoy, and several departments of France. Affluents—

LEFT.

1. *The Dranse* falls into the Lake of Geneva near Thonon.

2. *The Arve*, from Mt. Blanc, joins the Rhône below Geneva.

3. *The Isère*, from Mt. Iseran, washes Grenoble, and ends between Tournon and Valence. It is swelled by many mountain torrents.

4. *The Drôme.*

5. *The Sorgues*, from Mt. Ventoux, receives the *Ouvèze* and *Nesque*, and falls into the Rhône by two mouths.

6. *The Durance*, from Mt. Genevre, washes Briançon and Embran, joining the Rhône below Avignon.

RIGHT.

1. *The Ain*, from the Jura, with its tributary the *Bienne.*

2. *The Saône*, 225 miles long, from the plateau of Langres, washes Châlons, Mâcon, Villefranche and Trévoux, and terminates at Lyons. Its chief affluents are, the *Doubs*, a frontier river between France and Switzerland, and the *Seille.*

3. *The Ardeche*, ending at Pont St. Esprit.

4. *The Gardon*, formed by two streams from the Cevennes, terminating above Beaucaire.

IV. THE VAR rises in Mt. Caméléone, receives the *Esteron*, and terminates at St. Laurent, near Nice.

COAST.—From the Pyrenees to the mouths of the Rhône it forms a wide bay, and is low and sandy, intersected by shallows and lagunes, the most extensive of which are those of Thau and Aigues Mortes. From the mouths of the Rhône to that of the Var it projects into the sea in a bold curve, and is steep, broken, and fringed with islands. From the Var to a point in front of the Gorge of Cadibon it is narrow and mountainous.

ISLANDS.—The islands of Hyères and Lerins belong to this slope.

§ 47 THE ITALIAN PENINSULA is bounded on the North-west by the Maritime, Cottian, Graian, and Pennine Alps; on the North by the Lepontine, Rhetian, and Carnic Alps; and on the North-east by part of the

Julian Alps. It has three slopes, Western, Southern, and Eastern.

Western Slope.

This slope extends from the gorge of Cadibon, North-west of Genoa, to C. Spartivento. It is unrivalled for the beauty of its skies, the purity of its atmosphere, and the loveliness of its scenery. The soil produces flowers and fruits in profusion. Vines and olives, orange and citron trees everywhere abound; and in the South, tropical plants, such as the sugar-cane, date-palm, and cotton-plant, come to maturity. It is, however, ill-cultivated and poorly peopled. A hot wind, called the *Sirocco*, prevails often in the southern part of the peninsula. The northern portion contains only rivers of small magnitude; towards the South considerable streams are found.

1. THE MAGRA descends from the Apennines and falls into the Gulf of Spezia.

2. THE ARNO washes Florence and Pisa, and communicates with the Tiber by the Channel of Chiana.

3. THE OMBRONE flows near Sienna.

4. THE TIBER, 180 miles in length, rises in Mt. Comaro, bathes Perugia, flows by Rome, and falls into the sea at Ostia. It is a deep and rapid stream, receiving many affluents, of which the principal are, the *Chiana*, the *Nera*, which bathes Terni, and the *Teverone*, which flows by Tivoli.

5. THE GARIGLIANO, formed by two streams, the *Liri* and *Sacco*, passes Ponte-Corvo, and ends below Gaeta.

6. THE VOLTURNO washes Capua.

7. THE SILARO falls into the Gulf of Salerno.

COAST. — Curved, forming many gulfs and inlets, of which the principal are the the gulfs of Genoa, Gaeta and Salerno, and the bay of Naples. It is, in many parts, low and unhealthy, and contains two remarkably pestilential districts—the Maremma of Tuscany between the Arno and the Tiber, and the Pontine marshes between the Tiber and the Garigliano.

ISLANDS.—To this slope belong the islands opposite Tuscany, Corsica, Sardinia, Elba, &c., and those near Naples, Ischia, Procida, Capri, &c.

Southern Slope.

The Southern slope of Italy, or the slope to the Gulf of Taranto, extends from C. Spartivento to C. Leuca. It is wild and mountainous, clothed with excellent pastures, and watered only by torrents. Of these, the chief are—

1. THE CRATI, which flows by Cosenza, receives the Coscile bathing the ruins of Sybaris, and falls into the Gulf of Taranto.

2. THE BRANDANO, falling into the same gulf.

COAST.—This presents few remarkable points. It is skirted by perpendicular rocks, and hollowed out by the deep Gulf of Taranto.

Eastern Slope.

The Eastern slope of Italy, or the slope to the Adriatic Sea and Gulf of Venice, extends from C. Leuca to the eastern limit of the basin of the Isonzo. It is generally colder and less rich than the Western slope, but contains some delightful valleys and fertile plains, producing wine, oil, almonds, and various other fruits. Some rice also is grown near the coast. The mountain sides are covered with forests of chestnut, oak, and fir, or with fine pastures. In the province of Otranto, the South-eastern projection of Italy, cotton is cultivated with success, and oranges, lemons, and figs are grown. The southern part of this slope has no streams of importance, but the northern contains the largest rivers of the peninsula, as well as the most populous and fertile territory.

I. THE OFANTO traverses the plain of Cannæ, and falls into the Gulf of Manfredonia.

II. THE FORTORE flows North of Mt. Gargano.

III. THE PESCARA washes Aquila and Chieti, receives the *Aterno*, and terminates at Pescara.

IV. THE TRONTO passes by Ascoli and falls into the Adriatic, below St. Benedetta.

V. THE MARECCHIA flows by San Marino, and ends at Rimini.

VI. THE RUBICON is only a torrent.

VII. THE PÔ descends from Mt. Viso, leaves on its right Saluzzo and Carmagnola, washes Carignano, Turin, Casal, Piacenza, Cremona, Borgo-Forte, and passes near Ferrara, below which

the *Pô di Volano* and the *Pô di Primero*, now entirely separated from it, and enclosing the lagunes of Comacchio, formerly received its waters. The Pô enters the sea by several mouths; the soil washed down from the mountains continually raising its bed, the shores have to be protected from inundations by embankments. It has a course of about 400 miles. Affluents—

LEFT.	RIGHT.
1. *The Dora Riparia*, from Mt. Genèvre, ends at Turin.	
2. *The Dora Baltea*, from Mt. Blanc, passes Aosta, and terminates near Chivasso.	
3. *The Sesia*, from Mt. Rosa, ends below Casal.	
	1. *The Tanaro*, from Mt. Tenda, joins the Pô at Cambio.
4. *The Ticino*, or *Tessino*, from Mt. St. Gothard, flows through Lake Maggiore, and falls into the Pô below Pavia.	
	2. *The Trebbia*, from the Apennines, ends at Piacenza.
5. *The Adda*, from Mt. Oertler, traverses the Valteline, flows through the Lake of Como, and ends above Cremona.	
6. *The Oglio*, from Mt. Tonal, traverses Lake Iseo, and ends near Borgo-Forte.	
7. *The Mincio*, from Mt. Tonal, flows through the Lake of Garda, passes Mantua, and ends at Governolo.	
	3. *The Reno* receives several tributaries, and falls into the Pô di Primero at Traghetto, by means of a canal.

VIII. The Adige rises in the Rhetian Alps, washes Trent, Roveredo, and Legagno, and enters the Adriatic near Chioggia, through low marshes or lagunes, after a course of 240 miles. Its principal affluents are the *Eisack* and *Alpon*.

IX. The Bacchiglione washes Vicenza and Padua, and loses itself among the lagunes near Chioggia.

X. The Brenta rises South of Trent, waters Bassano, and terminates in the lagunes opposite Venice.

XI. The Piave bathes Belluno, and ends in the lagunes.

XII. The Tagliamento waters Tolmezzo, Osopo and Valvasone, ending in the lagunes.

XIII. The Isonzo descends from the Pass of Bredil, on the frontiers of Illyria, and falls into the Gulf of Trieste.

Coast.—The coast of the Gulf of Venice is covered with lagunes, intersected by canals maintained by human industry; that of the Adriatic, to the promontory of Mt. Gargano, is regular and little indented; South of this point, the coast is low and unwholesome.

Islands.—Sicily, separated from Italy by the Strait of Messina, has on the North-east a watershed which seems a prolongation of the Apennines, and which bifurcates at the centre of the island, sending one branch North-west and another South. These watersheds form three slopes, Northern, Southern, and Eastern, with numerous small streams. South of Sicily are Malta and the small island of Gozzo, belonging to England.

§ 48. The Slope to the Eastern Shore of the Adriatic and Ionian Seas is bounded by the Julian Alps, the Dinaric Alps, and the Hellenic Alps, to C. Matapan. The northern part of this slope is steep and narrow, sending down to the Adriatic only torrents; towards the South the mountains recede from the coast, affording space for some considerable rivers. It comprehends part of the Austrian and Turkish empires, and of the kingdom of Greece.

1. The Narenta enters the Adriatic behind the peninsula of Sabioncello.

2. THE DRINO of Albania is formed by two rivers, the *White Drino* on the North, and the *Black Drino* on the South.

3. THE VOIUTZA descends from Mt. Pindus.

4. THE ARTA, from Mt. Pindus, washes Mezzovo and Arta, and falls into the Gulf of Arta.

5. THE ASPROPOTAMOS issues from the angle formed by the Pindus and Acroceraunian Mts., and ends in the Sea of Cephalonia.

COAST.—Precipitous, hollowed out into numerous deep bays, and encircled by a girdle of islands.

ISLANDS.—The Dalmatian Archipelago, and six of the seven principal Ionian islands.

§ 49. THE SLOPE TO THE ARCHIPELAGO, THE DARDANELLES, THE SEA OF MARMORA, AND THE BOSPHORUS, is bounded on the West by the Hellenic Alps; and on the North by the Balkans. It includes some of the most celebrated and naturally fertile regions in Europe. The southern part belongs to Greece, the northern to Turkey.

1. THE EUROTAS washes Misitra, near the ruins of Sparta, and falls into the Gulf of Kalokythia.

2. THE INACHUS washes Argos, and falls into the Gulf of Nauplia.

3. THE CEPHISUS AND ILISSUS, two small streams, water Athens.

4. THE ASOPUS runs South of Thebes, and falls into the Sea of Negropont.

5. THE HELLADA terminates in the Gulf of Zeitoun, near Thermopylæ.

6. THE SALEMBRIA descends from Pindus, traverses the beautiful valleys of Thessalia and Tempe, and ends in the Gulf of Saloniki.

7. THE VARDAR springs from Mt. Tchardagh and falls into the Gulf of Saloniki.

8. THE STRYMON washes the ruins of Amphipolis and ends in the Gulf of Contessa.

9. THE MARITZA, the largest river in this slope, descends from a knot formed by the Emineh Dagh and the Despoto Dagh, receives the *Arda* and the *Toundja*, bathes Adrianople, and pours its waters into the Archipelago.

COAST.—That of the Archipelago is bold and steep, broken into a multitude of gulfs, among which may be mentioned those of Nauplia, Egina, Saloniki, and Contessa. The shores of the Sea of Marmora are picturesque and beautiful. The channels of the Dardanelles and Bosphorus are remarkable as dividing Europe from Asia, the coasts of the two continents being separated by a distance of little more than a mile.

ISLANDS.—These are very numerous, belonging to three different states: Cerigo to the Ionian republic; Negropont, the groups of the Sporades and Cyclades, and some other scattered islands to the kingdom of Greece; and Candia, Cyprus, Samos, Mitylene, Lemnos, and other islands near the coast of Asia Minor to Turkey.

§ 50. THE WESTERN SLOPE TO THE BLACK SEA contains the very extensive basin of the Danube and the basin of the Dneister.

I. THE DANUBE.—The basin of the Danube is bounded on the West by the Black Forest; on the North by the Swabian Alps, the Franconian Mts., the Bohemian Forest, the Moravian Mts., the Sunken Mts., the Central Carpathians, the Eastern Carpathians, and by inconsiderable heights between the Pruth and the Dneister; on the South by the Alps of Constance, the Algavian Alps, the Grisons Alps, the Rhetian Alps, the Carnic Alps, the Julian Alps, the Dinaric Alps, and the Balkans. The Danube is formed by two streams issuing from the Black Forest, washes Ulm, Donauwerth, Ratisbon, Passau, Linz, Stein, Vienna, Presburg, Comorn, Buda, Semlin, Belgrade, Semendria, and Orsova, and after a course of 1,722 miles, falls into the Black Sea by seven mouths.

The basin of the Danube is divided by chains of mountains into three parts, or into an upper, a middle, and a lower basin.

The Upper basin is separated from the Central below the confluence of the Inn; on the North by a northern prolongation of the Bohemian Forest; on the South by the Noric Alps to the source of the Muhr, an affluent of the Drave, and thence by their northern continuation. *The Central basin is separated from the Lower* at the Portes-de-fer, the point at which the Danube enters the Turkish Empire; on the North, by the southern part of the East Carpathians; on the South, by a northern prolongation of the Balkans, commencing at the source of the Morava.

The Upper basin belongs almost entirely to the Germanic Confederation, consisting, especially, of part of Wurtemburg and Bavaria, and is rich and populous. *The Central basin* lies principally within the Austrian dominions; it is fertile, with the exception of the eastern portion, which is marshy and unhealthy. *The Lower basin* is fruitful but ill-cultivated, destitute of good roads, and thinly inhabited.

Affluents—

LEFT.	RIGHT.
	1. *The Iller*, from the Algavian Alps, terminates at Ulm.
1. *The Wernitz* ends at Donauwerth.	
	2. *The Lech*, from the Algavian Alps, falls into the Danube below Augsburg.
2. *The Altmuhl*, from the Steiger Wald, ends at Kelheim.	
3. *The Naab*, from the Fichtelgebirge, ends opposite Ratisbon.	
4. *The Regen*, from the Bohemian Forest, terminates near Ratisbon.	
	3. *The Iser* rises in the Tyrolese Alps, receives the *Ammer*, and ends at Deckendorf.
	4. *The Inn*, from Mt. Maloia, flows through the Engadine valley, passes Landeck, Innsbruck, Kufstein, after passing Muhldorf, receives the Salza, and terminates at Passau.
5. *The March*, from the Schneeberg, with its tributaries the *Thaya*, *Iglawa*, and *Russbach*, unites with the Danube above Presburg.	

LEFT.	RIGHT.
	5. *The Raab* ends below Raab.
6. *The Waag*, from the Tatra. 7. *The Gran*, from the Carpathians, ends at Gran.	
	6. *The Drave*, from the Drei-Herren-Spitze, receives the Muhr, and enters the Danube below Eszek.
8. *The Theiss* receives the *Szamos*, Koros, and *Maros*, and terminates below Peterwardein.	
	7. *The Save*, from Mt. Terglou, receives the *Kulpa*, *Unna*, *Bosna*, and *Drina*, and ends at Belgrade. 8. *The Morava* enters the Danube near Semendria.
9. *The Alouta*, from the Carpathians, ends at Nicopoli. 10. *The Sereth* ends at Galatz. 11. *The Pruth*, from Mt. Czorna, falls into the Danube at Reni.	
	9. *The Isker* ends below Widdin.

COAST.—Steep in its southern part, and in the vicinity of the Balkans; low and swampy in the northern, near the mouths of the Danube, where there are extensive *lagunes*.

II. THE DNEISTER.—This basin is bounded on the North and East by a scarcely perceptible watershed; on the South and West by the Carpathians as far as the source of the Pruth, an affluent of the Danube, and afterwards by inconsiderable heights. The Dneister issues from the Central Carpathians, in Gallicia, flows into Russia, waters Bender, and falls into the Black Sea, at Ackerman, after a course of 500 miles.

§ 51. THE SPANISH PENINSULA is separated from the rest of Europe by the Pyrennees. It has four slopes: those on the North and West to the Atlantic; those on the South and East to the Mediterranean. The eastern and western slopes descend from the central plateau, whilst the others form steep and narrow bands at its extremities. On the coast, the land is flat and fertile, with rich valleys extending inland, from which rise the plateaux of the central region, and the *Parameras*—barren plains destitute of trees and of water; the whole crowned with sierras or jagged mountain ridges, often covered with snow.

Northern Slope.

This slope is bounded by the Cantabrian Pyrennees, from C. Figuier at the mouth of the Bidassoa to C. Finisterre, and forms between the coast of the Bay of Biscay and the mountains a narrow band about 300 miles in length, and 37 in breadth. The plains of this mountainous slope are very small. The climate is moist and rather cold; the orange, the olive, and even the vine cannot be grown without difficulty. Pastures and forests are the chief products of the soil. It is watered by numerous small but rapid streams.

1. *The Nalon* washes Oviedo, the capital of Asturias.
2. *The Ansa* passes Bilbao.
3. *The Deba* rises in the gorge of Salinas, through which passes the high road to France.
4. *The Bidassoa*, descending from the gorge of Maya, washes Ellisondo, St. Estevan, and Irun, and terminates at the South-east angle of the Bay of Biscay.

COAST.—This is almost straight, and everywhere bluff and lofty. The capes are Ortegal, Penas, and Machichaco.

Western Slope.

This slope is formed by the southern face of the Cantabrian Pyrennees, the various ranges of the Iberian Mts., and the northern

face of the Sierra Nevada. The plains are fertile and hot, the temperature of the high valleys is mild. The country abounds in the finest horses, cattle, and merino sheep; in quarries of marble, and in mines of silver, mercury, lead, and salt; but the indolence of the people neutralizes these advantages; the land is ill-cultivated and the population diminishing. It occupies, along the coast, a space of 300 miles in length, and 100 to 125 miles in breadth; and is divided by parallel mountain ranges, stretching from the central plateaux, towards the western coast, into four principal basins:—the Douro, including the two small lateral basins of the Minho and the Mondego; the Tagus; the Guadiana; and the Guadalquiver.

1. THE DOURO rises in the Sierra Moncayo, near the ruins of Numantia, washes Soria, Aranda and Zamora in Spain, crosses Portugal, and falls into the Atlantic at Oporto, after a course of 460 miles. Its affluents are, on the left, the *Eresma* which passes Segovia, and the *Tormes*, bathing Salamanca and ending on the frontier of Portugal; on the right, the *Pisuerga*, flowing by Valladolid, and the *Esla*, both in Spain.

2. THE MINHO, North of the Douro, rises in the Gallician Pyrennees, flows between Spain and Portugal, receives the Sil near Orensé, and falls into the Atlantic after a course of 130 miles.

3. THE MONDEGO, South of the Douro, rises in Portugal, in the Sierra Estrella, washes Coimbra, and reaches the Atlantic at C. Mondego.

4. THE TAGUS, 520 miles in length, rises in the Sierra Albaraçin, washes Aranjuez, Toledo, and Talavera, in Spain, and Abrantes in Portugal, forms at Lisbon a broad estuary or lagune, and enters the Atlantic between C. Roca and C. Epichel. Its affluents are, on the left, the *Sever* and *Zatas*; on the right, the *Xarama*, receiving the *Mancanarez*, a small stream bathing Madrid, the capital of Spain; the *Guadarrama*, which flows by the Escurial, and ends near Toledo, in Spain; and the *Alcantara*, which reaches the Tagus at Lisbon.

5. THE GUADIANA rises in the Sierra Alcaraz, and after passing for some miles through marshes, sinks underground, re-appearing at a distance of 13 miles. It bathes Ciudad Real, and Badajos, in Spain, enters Portugal, passes Serpa and Mertola, returns to the

frontier, and falls into the sea between Spain and Portugal, after a course of 400 miles.

6. THE GUADALQUIVER rises in the Sierra de Huescar, passes Andujar, Cordova, and Seville, and enters the sea at San Lucar, after passing through a desert and uninhabitable region called the *Marisma*. This river flows entirely in Spain, and has a course of 250 miles. Its affluents are, on the left, the *Zenil*, with a tributary bathing Grenada; on the right, the *Guadaliamar*, and the *Huelba*, which ends near Seville.

COAST.—Slightly concave from C. Finisterre to C. Roca. C. Epichel terminates a small peninsula, having on one side the Gulf of Lisbon, on the other the Bay of Setubal; between this point and C. St. Vincent the coast is nearly straight, from thence to C. Tarifa two bays are formed by the projection of C. Santa Maria.

Southern Slope.

This slope, enclosed by the southern face of the Sierra Nevada from C. Tarifa to C. Gata, is steep and narrow. Deep valleys, abundant springs, and the heat of an African sun, tempered by sea breezes, cause the vegetable products of the torrid zone to grow in this region almost spontaneously. It forms part of the Spanish province of Grenada, and has only short, rapid, and unimportant rivers.

1. THE GUADIARO passes Ronda.

2. THE GUADALJORE bathes Antequerra.

COAST.—Tortuous, but not deeply indented. The principal capes are Tarifa, Gibraltar, and Gata.

Eastern Slope.

This slope is bounded by the eastern watersheds of the Iberian Mts., to the plateau of Reynosa in the Cantabrian Pyrennees, and thence by the southern face of the Pyrennees to C. Creus. The most northern part, Navarre, is occupied by the wild and rugged valleys of the Pyrennees, and includes some *Parameras* skirting the great plateau. Aragon, in the centre, is little cultivated and thinly peopled, but Catalonia, Valencia, and Murcia open to the genial influences of the Mediterranean, and protected from the North

winds by the Pyrennees, are among the richest provinces of Spain. It is watered by the Segura, Yucar, Guadalaviar, Ebro, and Llobregat rivers, whose basins are separated by chains of mountains detached from the central plateau and terminating at the sea in Capes.

1. THE SEGURA descends from the Sierra de Huescar, waters Murcia and Orihuela, receives the *Madera* and the *Sangonera*, flows through a plain called the Garden of Spain, and falls into the Mediterranean after a course of 138 miles.

2. THE YUCAR rises in the Sierra Albaraçin, passes Cuença, receives the *Cabriel*, and ends its course of 174 miles near the lagunes of Albufera.

3. THE GUADALAVIAR issues from the Sierra of Albaraçin, bathes Valencia, and terminates at Grao, after a course of 125 miles.

The *Segura*, *Yucar*, and *Guadalaviar*, are not navigable, because their waters are employed in feeding canals of irrigation, by which the rich plains through which they flow are fertilized.

4. THE EBRO descends from the angle formed by the Cantabrian Pyrennees and the Iberian Mts. at the Sierra Reynosa. It bathes Miranda, Tudela, Saragossa, and Tortosa, and falls into the sea below Amposta, after a course of 300 miles. Its affluents are, on the left, the *Zadorra*, which passes by *Vittoria*; the *Aragon*, falling into the Ebro at Alfaro; the *Gallego*, ending near Saragossa; and the *Sègre*, which receives several tributaries and terminates at Mequinenza; on the right, the *Zalon*, entering the Ebro at Alagon, the *Huerba* at Saragossa, and the *Guadalupe*.

5. THE LLOBREGAT rises in the Pyrennees and ends South of Barcelona.

COAST.—Its indentations are slight, it is bordered almost throughout by rocks, and its gulfs are small. The most remarkable capes are Gata, Palos, St. Martin, St. Sebastian, and Creus.

ISLANDS.—THE BALEARIC ISLES, including Majorca, Minorca, Iviza, Formentera, and Cabrera, belong to the Eastern slope of the Spanish peninsula.

THE AZORES, a group of islands in the Atlantic, being situated in the same parallel with Lisbon, may be considered as belonging to Europe, though 800 miles from the coast of Portugal, to which kingdom they belong. They are nine in number, fertile and well peopled.

BRITISH ISLES.

§ 52. THE SHORES OF THE BRITISH ISLES, OR GREAT BRITAIN AND IRELAND, are washed on the East and North-east by the North Sea; on the South by the English Channel; and on the West and North-west by the Atlantic.

§ 53. The two principal watersheds of Great Britain form three slopes—1. A Southern Slope to the English Channel. 2. An Eastern Slope to the North Sea. 3. A Western Slope to the Atlantic, the Irish Sea, and the Bristol Channel.

England.

§ 54. ENGLAND is separated from Scotland by the Tweed, the Cheviot Hills, and the Solway Firth. It comprises the whole of the Southern slope of Great Britain, and the Southern part of the Eastern and Western slopes.

Southern Slope.

The Southern slope to the English Channel is narrow, and the rivers are of inconsiderable length. It extends from the Land's End to the South Foreland, and comprises the basins of the Fal, Tamar, Exe, Frome, Salisbury Avon, Southampton Water, Arun, and Ouse. It includes the counties of Cornwall, Devon, Dorset, Wilts, Hants, and Sussex.

1. THE FAL enters the sea at Falmouth.

2. THE TAMAR flows between Cornwall and Devon and falls into Plymouth Sound.

3. THE EXE rises in Exmoor, receives the *Dart* and the *Culm*, washes Exeter, and enters the English Channel at Exmouth.

4. THE FROME joins the *Piddle* or *Trent* and falls into Poole Harbour.

5. THE SALISBURY AVON rises near Devizes, passes Salisbury, and unites with the *Stour* at Christchurch.

6. The Southampton Water is fed by several streams, the chief of which are the *Test* and *Itchin*, and opens into the sea opposite the Isle of Wight.

7. The Arun flows through the vale of Arundel, and enters the sea at Little Hampton.

8. The Ouse crosses the South Downs and ends at Newhaven.

Coast.—This presents deep river mouths, and numerous bays commodious for shipping.

Islands.—The Scilly Islands off the coast of Cornwall, and the I. of Wight, separated from Hampshire by the Solent and Spithead.

Eastern Slope.

The Eastern slope to the North Sea extends from the South Foreland to the Cheviot Hills. It includes the basin of the Thames, the Eastern plain, and the basins of the Wash, Humber, Tees, Tyne, and Tweed.

I. The Thames rises in Gloucestershire, in the Cotswold Hills, in two streams, which form the *Churn*, joining at Cricklade the *Thames* or *Isis*, which flows from thence in a course of 220 miles, dividing Gloucestershire from Wilts, Oxfordshire and Buckinghamshire from Berks, Middlesex from Surrey, and Essex from Kent; washes Oxford, Reading, Windsor, Hampton, Richmond, London, Greenwich, Woolwich, and Gravesend; and enters the North Sea in a broad estuary between the Isles of Thanet and Foulness. Affluents—

LEFT.	RIGHT.
1. *The Lech* enters the Thames below Lechlade.	
2. *The Cherwell*, at Oxford.	
3. *The Thame*, at Dorchester.	
	1. *The Kennet* enters the Thames near Reading.
4. *The Colne*, below Windsor.	
	2. *The Wey*, at Weybridge.
	3. *The Mole*, at Molesley.
5. *The Lea*, below London.	

LEFT. RIGHT.

4. *The Darent*, below London.

5. *The Medway* forms two branches — the principal one meets the Thames at Sheerness; the other, called the Swale, separates the Isle of Sheppy from the mainland.

The Eastern plain, between the basins of the Thames and the Wash, forms a kind of peninsula comprising the counties of Suffolk and Norfolk, and drained by several small rivers.

1. THE STOUR and the ORWELL enter the sea at Harwich.

2. THE YARE receives the *Wensum*, *Waveney*, and *Bure*, passes Norwich, and ends at Great Yarmouth.

The basin of the Wash comprehends the Ouse, Nen, Welland, and Witham, and extends over the counties of Cambridge, Huntingdon, Bedford, Northampton, Rutland, and Lincoln.

1. THE GREAT OUSE rises in Northamptonshire, passes Newport Pagnel, Olney, Bedford, and Huntingdon, entering the estuary of the Wash below King's Lynn. Its chief affluents are, the *Ivel*, the *Cam* bathing Cambridge, and the *Little Ouse*.

2. THE NEN flows through Northamptonshire and part of Cambridgeshire, falling into the Wash below Wisbeach.

3. THE WELLAND rises near Market Harborough, divides Northamptonshire from Rutland, and enters Lincolnshire before emptying its waters into the Wash.

4. THE WITHAM rises on the border of Rutland and flows through Lincolnshire, entering the Wash below Boston.

The basin of the Humber includes the Trent and the Ouse.

1. THE TRENT rises in Staffordshire, and flows through Derbyshire, Nottingham, and part of Lincoln, into the Humber. Its chief affluents are, the *Tame*, *Dove*, *Soar*, *Derwent*, *Erewash*, and *Idle*. Its length is 148 miles to its confluence with the Humber, which has a further course of 40 miles.

2. THE NORTHERN OUSE is formed by the junction of the *Ure* and *Swale*, two rivers rising on the North-west border of Yorkshire, and

uniting near Aldborough. The Ouse washes York, and has a course of 130 miles to its entrance into the Humber. The valley of the Ouse occupies the whole centre of Yorkshire from North-west to South-east. Its principal affluents are, the *Nidd*, *Foss*, *Wharfe*, *Derwent*, *Aire*, and *Don*.

3. THE TEES rises in Crossfell, Cumberland, and divides Durham from Westmoreland, and afterwards from Yorkshire. It receives the Greta and Skerne, and ends below Stockton.

4. THE WEAR flows through Durham, and enters the North Sea at Sunderland.

5. THE TYNE, formed by two streams, the N. and S. Tyne, flows through Northumberland, and falls into the sea below Newcastle.

COAST.—Intersected by numerous inlets, the principal of which are the estuaries of the Thames, the Wash, and the Humber. It is in some parts bordered by cliffs, but more generally it is low, sandy, or marshy, and subject to encroachments of the sea.

Western Slopes.

I. *A Slope to the Irish Sea*, including the basins of the Esk, Eden, Lune, Ribble, and Mersey, in the counties of Cumberland, Westmoreland, Lancashire, and Cheshire; and the northern slope of Wales, with the basins of the Chester Dee, Clwyd, and Conway, in the counties of Flint, Denbigh, and Caernarvon.

1. THE EDEN rises in the Pennine chain between Westmoreland and Yorkshire, flows northward through Cumberland, receives the *Eamont*, *Irthing*, and *Calder*, and falls into the Solway Firth.

2. THE DERWENT rises in Borrowdale, flows through the lakes of Derwentwater and Bassenthwaite, receives the *Cocker* and *Greta*, and ends at Workington.

3. THE LUNE rises in the Langdale Fells, Westmoreland, and falls into Lancaster Bay.

4. THE RIBBLE rises in the Yorkshire Hills, enters Lancashire, after having for some distance divided it from Yorkshire—receives the *Hodder*, *Calder*, and *Darwen*, and enters the Irish Sea in a wide shallow estuary.

5. THE MERSEY is formed by the union, near Stockport, of the Tame and Goyt; the former rising in the Yorkshire, the latter in the Derbyshire Hills. It flows between Lancashire and Cheshire,

receives the *Irwell* and *Weaver*, and expands, after its junction with the latter, into a broad estuary, passing by Liverpool into the Irish Sea.

6. THE DEE rises in the Berwyn Hills, Merionethshire, flows through the vale of Llangollen, and part of Denbigh and Flint, to Chester, and thence by the estuary of the Dee into the Irish Sea.

7. THE CLWYD rises in Denbigh, and flows through the vale of Clwyd into the Irish Sea.

8. THE CONWAY rises in the Snowdon range, is swelled by several mountain streams, and falls below Conway Castle into the Irish Sea.

II. *A Slope to Cardigan Bay*, including the basins of the Dovey and Teify, with those of several other small streams, in the counties of Merioneth and Cardigan.

1. THE DOVEY rises in the Berwyn chain, receives numerous small affluents and terminates in Cardigan Bay.

2. THE TEIFY rises in Llyn Teify, a small lake on the eastern border of Cardigan, forms a boundary between that county and those of Caermarthen and Pembroke, and falls into Cardigan Bay.

III. *A Slope to the Bristol Channel*, including the basins of the Towey, Usk, Wye, Severn, and Parret.

1. THE TOWEY rises in Cardiganshire, flows through Caermarthen, and falls into the Bay of Caermarthen.

2. THE USK rises on the border of Caermarthen, flows through Monmouthshire, passing the towns of Usk, Caerleon and Newport, and falls into the Bristol Channel.

3. THE WYE rises in Plinlimmon, flows through Herefordshire, passing the town of Hereford, forms the boundary between Herefordshire and Monmouthshire, passes Monmouth, and enters the Bristol Channel by the estuary of the Severn.

4. THE SEVERN descends from Plinlimmon, on the western border of Montgomeryshire, passes through Shropshire, Worcestershire, and Gloucestershire, washes Shrewsbury, Worcester, Tewkesbury, and Gloucester, forms below Newnham a broad estuary extending as far as the mouth of the Bristol Avon, and, after a course of 200 miles, ends in the Bristol Channel. Affluents—

LEFT.

1. *The Vyrnwy* enters the Severn below Welshpool.

2. *The Roden* above Wroxeter.

3. *The Stour* at Stourport.

4. *The Upper or Warwickshire Avon* rises near Naseby in Northamptonshire, passes Rugby, Warwick, Stratford (the birthplace of Shakspere), Evesham, and Pershore, falling into the Severn at Tewkesbury. It has a course of about 100 miles. Its tributaries are the *Swift*, *Sow*, *Lem*, *Stour*, and *Alne*.

5. *The Lower or Bristol Avon* rises in the North of Wiltshire, flows by Chippenham, Melksham, Bradford, Bath, and Bristol, into the Bristol Channel through the mouth of the Severn. It receives the *Were*, *Frome*, and several smaller streams, and is more than 60 miles in length.

RIGHT.

1. *The Rea* enters the Severn at Shrewsbury.

2. *The Teme*, rising in Radnor, ends below Worcester.

THE PARRET rises in Dorsetshire, and flows northward through Somersetshire into Bridgewater Bay. It receives the *Yeo*, *Tone*, and *Cary*. The isle of Athelney lies between the Tone and Parret.

COAST.—Steep and rocky, everywhere varied in outline and broken by inlets, of which the chief are the Solway Firth between England and Scotland; Morecombe Bay, between Lancashire and Westmoreland; the bays of Cardigan and Caermarthen, in Wales; and the Bristol Channel, or estuary of the Severn, between Wales and the northern shores of Somerset and Devon.

ISLANDS.—The Isle of Man, in the Irish Sea; Anglesey, off the North-west coast of Wales; and some islets in the Bristol Channel.

Scotland.

§ 55. Scotland is that part of Great Britain which lies North of the Tweed and the Cheviot Hills. It comprises the northern part of the Eastern and Western slopes.

Eastern Slope.

The Eastern Slope of Scotland, or the slope to the North Sea, extends from the English border on the South to Duncansby Head on the North; and includes the basins of the Tweed; Forth; Tay and Esk; Dee and Don; Ness and Moray Firth.

I. THE TWEED rises in the Lowther Hills, and with its affluents extends over Selkirk, Peebles, Roxburgh, and Berwick. It forms one of the boundaries between England and Scotland, and after a course of 96 miles enters the North Sea at Berwick. Its affluents are, in Scotland, the *Ettrick, Garrow, Teviot, Gala, Lauder,* and *Blackadder;* in England, the *Till.*

II. THE FORTH descends from Ben Lomond, and is formed by two streams which unite at Aberfoyle. It receives the *Teith, Allan,* and *Devon,* and terminates in a broad gulf, 50 miles in length, called the Firth of Forth. The length of the river, from its source to the commencement of its estuary, is 60 miles. The counties of Stirling, Clackmannan, Kinross, Linlithgow, Edinburgh, and Haddington, are comprised in this basin.

III. *The basin of the Tay and Esk* extends over the counties of Fife, Perth, Forfar, and Kincardine.

1. THE TAY rises in a small loch on the borders of Argyleshire, flows through L. Dochart and L. Tay, and thence in a very winding course to Perth, seven miles below which it enters the Firth of Tay. It is 105 miles in length, and sends into the sea a larger body of water than any other river in Scotland. Its affluents are, on the left, the *Lochie* entering it above, the *Lyon* below L. Tay; the *Tummel* issuing from L. Lydoch, flowing through L. Rannoch and L. Tummel, receiving the *Garry* from L. Garry and entering the Tay after a course of 40 miles; and the *Isla*:—on the right, the *Brand,* the *Almond,* and the *Earn.*

2. THE NORTH ESK issues from L. Lee, receives numerous small

streams, and enters the North Sea about three miles north of Montrose.

3. The South Esk descends from the Grampians, flows through the valley of Strathmore, and augmented by many small tributaries falls into the sea at Montrose.

IV. *The basin of the Dee and Don* includes the county of Aberdeen.

1. The Dee has its source in the Cairngorm Mountains, at a height of 4,000 feet above the sea. In its upper course it makes several falls, the principal one called the Linn of Dee. It receives the *Gairn*, the *Muick*, and the *Dye*, and after a course of 87 miles enters the sea at Aberdeen.

2. The Don issues from a peat moss on the western border of Aberdeenshire, receives the *Urig*, *Ernan*, and *Leochal*, and reaches the sea near Aberdeen.

V. *The basin of the Ness and Moray Firth* extends over the counties of Banff, Elgin, Nairn, Inverness, Cromarty, and Ross.

1. The Doveran rises in the Cabrach Hills, and falls into the Moray Firth at Banff.

2. The Spey rises in L. Spey, among the hills of Badenoch, receives the *Netley*, *Dulnan*, and *Avon*, forms numerous rapids and falls, and enters the Moray Firth on the border of Elgin.

3. The Findhorn rises in the Monadh Leadh Mountains, and falls into the sea at Findhorn Harbour.

4. The Nairn rises in Strathnairn, and ends near the town of Nairn.

5. The Ness issues from L. Ness, emptying its waters into the Moray Firth at Inverness.

6. The Beauly falls into L. Beauly, at the upper part of the Moray Firth.

7. The Oikel rises at the foot of Ben Mohr, expands into a small lake called the Kyle, and falls into Dornoch Firth.

Coast.—The shores of the Moray Firth are low and sandy. Between the river Dee and the Firth of Tay the coast is formed chiefly by cliffs; South of this point it is generally flat, though in some places approached very closely by the hills—and near the English border it becomes high and precipitous. The principal inlets are the Firths of Forth and Tay, the Moray Firth, and Dornoch Firth.

Islands.—The Orkney Islands, separated from the northern coast of Scotland by the Pentland Firth, comprise Pomona or

Mainland, Hoy, North and South Ronaldsha, Westra, and many others, amounting altogether to 67 in number, 40 of which are inhabited. The Shetland Isles, North of the Orkneys, are still more numerous, exceeding 100, of which more than 30 are inhabited. Mainland, the largest of this group, is 52 miles in length; of the others, the most considerable are Yell, Unst, Fetlar, Whalsey, Bressa, and Foula. Besides these there are a few detached islets off the eastern coast of Scotland; the Bass Rock, Inchkeith, and some others in the Firth of Forth; and the Inchcape, or Bell Rock, in the Firth of Tay, on which is a lighthouse.

Western Slope.

The Western Slope of Scotland, or the slope to the Atlantic Ocean, North Channel, and Irish Sea, extends from C. Wrath to the Solway Firth. It has no considerable streams in its northern part, owing to the near approach of the Highlands to the coast; but the southern contains the basins of the Clyde; the Irvine, Ayr, and Doon; and the Solway Firth.

I. THE CLYDE rises in the central part of the Lowther and Leadhill ranges, receives on the left the *Douglas*, *Avon*, and *Cart*; on the right, the *Medwin*, *Calder*, and *Kelvin*; makes near Lanark three considerable falls, descending 230 feet in six miles; passes Glasgow, Dumbarton, and Greenock, flows in a broad estuary between the Kilpatrick and Renfrew Hills, and reaches the sea by the two straits formed by the Cumbrae islands between the isle of Bute and the coast of Ayrshire. The counties of Lanark, Dumbarton and Renfrew are comprised in this basin.

II. *The basin of the Irvine, Ayr, and Doon* extends over the county of Ayr.

1. THE IRVINE crosses the northern part of Ayrshire, and unites with the *Garnock* before falling into the North Channel.

2. THE AYR has its source in the Leadhills, crosses Ayrshire, and ends in the North Channel near the town of Ayr.

3. THE DOON issues from several small lochs on the South-east border of Ayrshire, passes through Loch Doon, and terminates about two miles South of the mouth of the Ayr.

III. *The basin of the Solway Firth* includes the counties of Wigton, Kirkcudbright, and Dumfries.

1. THE CREE separates Wigton from Kirkcudbright, and falls into Wigton Bay.

2. THE DEE (of Kirkcudbright) rises near the North-western boundary of that county, flows through Loch Ken, and falls into the bay of Kirkcudbright.

3. THE NITH rises on the Southern border of Ayr, receives many affluents, and falls into the Solway Firth.

4. THE ANNAN rises in the Lowther Hills, near the sources of the Clyde and Tweed, is swelled by many tributary streams, and enters the Solway Firth below Annan.

5. THE ESK rises on the borders of Selkirkshire, passes Langholm and Canobie, forms for one mile the boundary of England, and then flows through a small part of Cumberland before falling into the Solway Firth. Its principal tributaries are the *Liddel*, *Tarras*, *Wauchope*, *Ewes*, *Meggot*, and *Black Esk*.

COAST.—Varied and picturesque, projecting in bold promontories or peninsulas, intersected by deep and tortuous indentations, and fringed with islands. The chief projections are those of C. Wrath, Stoer Point, Ardnamurchan Point, the peninsula of Cantire, with its extremity the Mull of Cantire; Corsill Point, the Mull of Galloway, and Barrow Head; the principal inlets are the Kyle of Assynt, Loch Broom, L. Ewe, L. Torridon, L. Carron, L. Alsh, L. Hourn, L. Nevis, L. Sunart, L. Linnhe, L. Leven, L. Etive, L. Fyne, the Firth of Clyde, L. Long, L. Ryan, Luce Bay, Wigton Bay, and the Solway Firth.

ISLANDS.—The Hebrides or Western Isles, divided by the channel of the Minch into the *Outer* or *Western*, and the *Inner* or *Eastern* Hebrides; the former a continuous chain of islands 140 miles in length, the largest consisting of two parts, Lewis and Harris, united by a narrow isthmus; and North Uist, Benbecula, South Uist, and a multitude of smaller islets stretching South. The latter group, containing Skye, the largest, with Rona, Raasay, Scalpa, and others, between it and the mainland, and Canna, Rum, Eig, and Muck, to the South-west. Farther South are situated Coll and Tirree; the Skerry Vore, on which a lighthouse has been erected; Mull, a large island, adjacent to which is Iona; Staffa, a basaltic islet, celebrated for its magnificent cavern; Colonsay; and Oronsay.

Ireland.

§ 56. Ireland may be divided into two slopes—an Eastern Slope to the North Channel, Irish Sea, and St. George's Channel; and a Western Slope to the Atlantic; C. Malin on the North, and C. Mizen on the South, forming the two extremities of the watershed.

Eastern Slope.

The Eastern Slope of Ireland contains no large rivers. The principal basins are those of the Bandon, Lee, and Blackwater; the Barrow; the Slaney; the Liffey and Boyne; the Lagan; and the Bann and Foyle.

I. *The basin of the Bandon, Lee, and Blackwater* extends over the county of Cork.

1. THE BANDON terminates at Kinsale Harbour.

2. THE LEE divides the county of Cork into two parts, and forms at its mouth Cork Harbour, one of the finest in the world.

3. THE BLACKWATER falls into Youghall Bay.

II. THE BARROW rises in the Slieve Bloom mountains, receives the *Nore*, with its tributary the *Owenree*, and unites with the *Suir*, to form Waterford Harbour. This basin comprises the counties of Kilkenny, Carlow, Queen's County, and part of Tipperary.

III. THE SLANEY descends from Lugnaquilla, the highest of the Wicklow mountains, receives the *Bann*, *Urn*, and *Boro*, and ends in Wexford Harbour. Its basin lies entirely in the county of Wexford.

IV. *The basin of the Liffey and Boyne* includes the counties of Dublin, Meath, Louth, Kildare, and Wicklow.

1. THE LIFFEY rises in the Wicklow mountains, receives the *King's River*, washes Dublin, and falls into Dublin Bay.

2. THE BOYNE rises in the Bog of Allen and flows through Meath. It receives the *Deel* and *Blackwater*, and ends below Drogheda. On its banks was fought the famous battle of the Boyne, gained by William III., of Orange, over James II.

V. THE LAGAN flows entirely within the county of Down, passes Belfast, and terminates in Belfast Lough.

VI. *The basin of the Bann and Foyle* extends over the counties of Armagh, Tyrone, Londonderry, and Donegal.

1. THE BANN is divided into *Upper* and *Lower*. The Upper Bann has its source in the Mourne mountains, and ends in Lough Neagh; the Lower Bann issues from Lough Neagh, receives the *Clady* and some smaller tributaries, and ends below Coleraine.

2. THE FOYLE is formed by several streams, the principal of which is the *Camowen* or *Owenkillen*, rising in the mountains between Lough Neagh and Omagh; it receives also the *Finn*, *Derg*, *Deel*, and *Swilly*, passes Londonderry and flows into Lough Foyle.

COAST.—Broken by numerous bays and spacious harbours, of which the principal are Cork, Youghall, Waterford, and Wexford harbours; Dublin, Dundalk, Carlingford, and Dundrum bays; and the loughs of Strangford, Belfast, and Foyle.

ISLANDS.—Small, and closely adjacent to the coast. The chief are, Dalkey I., in Dublin Bay; Ireland's Eye, North of Howth; Lambay I., Rathlin I., and Innistrahull, North of Malin Head.

Western Slope.

This contains the basins of Lough Swilly and Boylagh Bay; of Donegal, Sligo, and Killala Bays; of Clew and Galway Bays; of the Shannon; and of Dingle, Kenmare, and Bantry Bays.

I. *The basin of Lough Swilly and Boylagh Bay* extends over the county of Donegal, and includes the Swilly and Gwibarra rivers.

1. THE SWILLY passes Letterkenny, and ends at the head of Lough Swilly—the other principal feeders of Lough Swilly are the *Leannan* and the *Lackagh*.

2. THE GWIBARRA terminates in Boylagh Bay.

II. *The basin of Donegal, Sligo, and Killala Bays* comprises the counties of Fermanagh, Leitrim, and Sligo, and part of Donegal and Cavan, and contains the Erne, Owenmore, and Moy rivers.

1. THE ERNE rises in a lake on the border of Longford, passes through the upper and lower Lakes Erne, and falls into the Bay of Donegal below Ballyshannon. The *Woodford*, *Claddagh* and *Arney* empty their waters into Lough Erne.

2. THE OWENMORE rises in the Curlew and Kesh Corran mountains, receives the *Owenbeg*, and the *Arrow* from Lake Arrow, and falls into Sligo Bay.

3. THE MOY separates Mayo from Sligo, receives the waters of L. Conn and L. Cullin, and falls into Killala Bay.

III. *The basin of Clew and Bantry Bays* extends over the counties of Mayo and Galway, and contains the Owenmore; and the Curramore and other tributaries of L. Mask and L. Corrib.

1. THE OWENMORE rises in the mountains of Mayo, receives the waters of Lake Carrowmore and several smaller lakes, and terminates in Tulloghane Bay.

2. THE CURRAMORE rises in Galway, and falls into L. Corrib, which receives also the *Shrule* and the waters of L. Mask. The chief tributaries of L. Mask are the *Ayle* and the *Robe*.

IV. *The basin of the Shannon* comprises the counties of Roscommon, Longford, Westmeath, King's County, Clare, and Limerick, and part of Tipperary.

THE SHANNON, the largest river in Ireland, rises in the county of Cavan, flows through L. Allen, L. Forbes, L. Ree, and L. Derg; receives the *Boyle*, from L. Garra and L. Key; the *Suck*, with several tributaries, the *Brosna*, *Mulkern*, *Fergus*, *Mayne*, *Deel*, and *Feale*, and falls into the Atlantic in a broad estuary, 60 miles long; the entire length of the river being 224 miles.

V. *The basin of Dingle, Kenmare, and Bantry Bays* extends through the county of Kerry and a small portion of Cork. The rivers are inconsiderable; the principal being—the *Maine*; the *Laune*, through which the waters of the Lakes of Killarney are discharged into Dingle Bay; the *Inny*; and the *Roughty*.

1. THE MAINE terminates at the head of Dingle Bay.

2. THE LAUNE issues from the lower Lake of Killarney, and falls into Dingle Bay. The chief feeder of the Lakes of Killarney is the *Flesk*. They are celebrated for their picturesque scenery, the highest mountains in Ireland rising steeply from their shores.

3. THE INNY terminates in Ballinskellig Bay.

4. THE ROUGHTY empties itself at the head of Kenmare Bay.

COAST.—Steep and rocky, and remarkable for its large and sheltered bays and loughs; the principal of these are Lough Swilly, Boylagh, Donegal, Sligo, Killala, Clew, and Galway Bays; the estuary of the Shannon, and Dingle, Kenmare, and Bantry Bays.

ISLANDS.—Numerous, but of small extent. The most remarkable are Aran I., off the coast of Donegal; Inniskea I., N. of Tulloghane Bay; Achil I., separated from Mayo by a narrow channel; Clare I., and the Arran Is. at the entrance to Galway Bay.

§ 57. LAKES—

In Russia, Lake Ladoga, with a surface of 6,330 square miles; L. Onega, 3,280 square miles; both North-east of St. Petersburgh; and L. Peipus, 1,250 square miles, forming the Narva.

In Sweden, Lake Wener, 2,136 square miles; L. Wetter, 840 square miles; L. Maelar, 760 square miles.

In Finland, Lake Saima, 2,000 square miles, and several other lakes.

In Switzerland, the Lake of Geneva, 240 square miles, traversed by the Rhône; the Lake of Constance, 228 square miles, traversed by the Rhine; the L. of Neufchatel, 115 square miles, and of Bienne, 30 square miles, traversed by the Thiele; the L. of Brienz 16 square miles, and of Thur 24 square miles, traversed by the Aar; and the L. of the Four Cantons, 99 square miles, traversed by the Reuss.

In North Italy, Lake Garda, 183 square miles, traversed by the Mincio; L. Maggiore, 152 square miles, and L. Lugano 22 square miles, traversed by the Tessino; and L. Como, 70 square miles, traversed by the Adda.

In Hungary, Lake Balaton, 250 square miles; and L. Neusiedler, 110 square miles, traversed by the Raabnitz.

BRITISH ISLES.

In England, Lake Windermere 12 square miles, Ulleswater 6 square miles, Coniston 3 square miles, Derwentwater 4 square miles, and Bassenthwaite 3 square miles; in Wales, L. Bala 3 square miles, and Brecknock Mere 3 square miles.

In Scotland, Loch Lomond 45 square miles, L. Katrine 8 square miles, L. Awe 28 square miles, L. Tay 21 square miles, L. Ericht 14 square miles, L. Rannoch 7 square miles, L. Lydoch 9 square miles, L. Leven 12 square miles, L. Ness 32 square miles, L. Shin 17 square miles, and L. Ken 6 square miles.

In Ireland, Lough Neah 150 square miles, L. Erne (Upper and Lower) 57 square miles, L. Allen 14 square miles, L. Rea 41 square miles, L. Derg 46 square miles, L. Mask 35 square miles, L. Corrib 68 square miles, and Lakes of Killarney 10 square miles.

§ 58. PRINCIPAL rivers of Europe, divided according to the Ocean basins:—

BASIN OF THE ARCTIC OCEAN.

Slopes.	*Rivers.*	Length in English Miles.
Slope to the Arctic Ocean.	PETCHORA	690
	MEZEN	480
	NORTHERN DWINA	800
	ONEGA	380
	TANA	150

BASIN OF THE ATLANTIC.

1. Western, or Norwegian Slope of Scandinavia.		
2. Southern Slope of Scandinavia to the Baltic.	GOTHA	87
	GLOMMEN	280
3. Eastern or Swedish Slope of Scandinavia to the Baltic.	TORNEA	350
	DAL	300
4. Slope to the Eastern coast of the Baltic.	NEVA	46
	NARVA	40
	SOUTHERN DWINA	750
	NIEMEN	529
	PREGEL	100
5. Slope to the Southern coast of the Baltic.	VISTULA	650
	*Bug**	
	ODER	497
	Wartha	
6. Slope to the North Sea.	ELBE	700
	Saale	212
	Spree	220
	WESER	300
	EMS	210
	RHINE	870
	Neckar	210
	Maine	280
	Moselle	265
	MEUSE	447
	SCHELDT	211
	YSER	

* Affluents are indicated by Italics.

Slopes.	*Rivers.*	Length in English Miles.
7. Southern, or French Slope to the English Channel.	Somme	93
	Seine	440
	Marne	210
8. French Slope to the Bay of Biscay.	Vilaine	116
	Loire	560
	Allier	200
	Sèvre Niortaise	65
	Charente	200
	Garonne	350
	Dordogne	220
	Adour	95
9, Spanish Slope to the Bay of Biscay.		
10. Spanish Slope to the Atlantic.	Minho	130
	Douro	460
	Mondego	130
	Tagus	520
	Guadiana	400
	Guadalquiver	250
	Zenil	
11. Spanish Slope to the Mediterranean Sea.	Guadiaro	40
	Segura	138
	Yucar	174
	Guadalaviar	125
	Ebro	300
	Sègre	150
	Llobregat	
12. French Slope to the Mediterranean.	Aude	124
	Herault	80
	Rhone	500
	Saône	225
	Doubs	288
	Isère	150
	Durance	160
	Var	65
13. Western Slope of Italy to the Mediterranean.	Arno	150
	Tiber	180
	Volturno	90

Slopes.	*Rivers.*	Length in English Miles.
14. Southern Slope of Italy to the Mediterranean.		
15. Italian Slope to the Adriatic.	OFANTO	75
	PÒ	400
	Tanaro	125
	Tessino or Ticino	125
	Adda	80
	Oglio	130
	ADIGE	240
16. Slope to the Eastern coast of the Adriatic.	NARENTA	140
	DRINO	110
	ARTA	60
	ASPROPOTAMUS	100
17. Slope to the Archipelago, Dardanelles, Sea of Marmora, and Bosporus.	CEPHISUS and ILYSSUS	25
	SALEMBRIA	110
	VARDAR	170
	STRYMON or STRUMA	...
	MARITZA	243
18. Slope to the Western coast of the Black Sea.	DANUBE	1,868
	Lech	140
	Inn	250
	Drave	360
	Save	550
	Pruth	360
	DNEISTER	500
19. Slope to the Northern coast of the Black Sea.	DON	1,081
	DNIEPER	1,209
	Beresina	200
	Pripet	350
	Bug	340

BASIN OF THE CASPIAN SEA.

Slope to the Caspian Sea.	URAL	1,800
	VOLGA	2,166
	Kama	1,400
	Oka	650
	TEREK	350

BRITISH ISLES.

Great Britain.

Basin of the Atlantic.

Slopes.	*Rivers.*	Length in English Miles.
1. Southern Slope to the English Channel.	Fal	20
	Tamar	55
	Exe	55
	Dart	35
	Frome	43
	Salisbury Avon	70
	Stour	55
	Southampton Water	
	Test and Anton	27
	Arun	41
	Ouse	35
2. Eastern Slope to the North Sea.	Thames	220
	Cherwell	50
	Thame	30
	Kennet	
	Colne	36
	Lea	30
	Medway	60
	Stour	55
	Yare	60
	Great Ouse	145
	Cam	30
	Nen	85
	Welland	60
	Witham	75
	Trent	148
	Dove	45
	Derwent	55
	Northern Ouse	130
	Wharfe	60
	Aire	70
	Don	50
	Tees	75
	Wear	60
	Tyne	70

Slopes.	*Rivers.*	Length in English Miles.
2. Eastern Slope—*continued.*	TWEED	96
	Ettrick	25
	Teviot	35
	Gala	22
	Till	35
	FORTH	110
	TAY	105
	Tummel	40
	Earn	40
	NORTH ESK	40
	SOUTH ESK	45
	DEE	87
	DON	50
	DOVERAN	55
	SPEY	96
	FINDHORN	50
	NAIRN	30
3. Western Slope to the Atlantic Ocean, North Channel, Irish Sea, St. George's Channel, and Bristol Channel.	CLYDE	100
	IRVINE	22
	AYR	30
	DOON	30
	DEE	45
	NITH	60
	ANNAN	45
	ESK	65
	DERWENT	42
	EDEN	80
	LUNE	50
	RIBBLE	60
	MERSEY	70
	Irwell	30
	Weaver	30
	DEE	90
	CLWYD	32
	CONWAY	24
	DOVEY	30
	TEIFY	53

Slopes.	*Rivers.*	Length in English Miles.
3. Western Slope—*continued.*	TOWEY	70
	USK	70
	WYE	120
	SEVERN	200
	Vyrnwy	35
	Teme	60
	Upper Avon	96
	Lower Avon	65
	PARRET	40

Ireland.

BASIN OF THE ATLANTIC.

1. Eastern Slope to the North Channel, Irish Sea, and St. George's Channel.	BANDON	40
	LEE	35
	BLACKWATER	110
	BARROW	114
	Suir	100
	Nore	70
	SLANEY	60
	LIFFEY	50
	BOYNE	60
	LAGAN	42
	Dee	
	BANN	60
	FOYLE	16
2. Western Slope to the Atlantic.	ERNE	72
	GWIBARRA	
	OWENMORE	14
	MOY	35
	CURRAMORE	
	SHANNON	225
	Suck	60
	Feale	38
	MAINE	24
	LAUNE	
	ROUGHTY	

ASIA.

§ 59. POSITION. — Asia is the largest of the three great divisions of the old continent. It lies between the 1st and 78th parallels of north lat., and between the 26th meridian of east, and the 170th of west long.

Extreme Points.—North, C. Sievero Vostochni 78° 20′ N. lat.; South, C. Romania 1° 20′ N. lat.; West, C. Baba 26° 5′ E. long.; East, East Cape 169° 50′ W. long.

Dimensions.—Asia extends from C. Baba in Asia Minor, South-west, to East Cape in Behring's Strait, North-east. *Length*, from Behring's Strait to Strait of Bab-el-Mandeb, 6,700 miles. *Breadth*, from C. Sievero Vostochni, to C. Romania, 5,400 miles. *Area*, not including islands, about 17,500,000 square miles.

Form.—The general or *normal* shape is shown by lines connecting the mouth of the Kara, East Cape, Singapore, Calcutta, C. Comorin, C. Ras-el-Hadd, C. Bab-el-Mandeb, the Dardanelles, C. Apcheran, and the Gulf of Kara.

§ 60. BOUNDARIES.—*North*, the Arctic Ocean; *East*, the Pacific Ocean; *South*, the Indian Ocean; *West*, the Red Sea, Isthmus of Suez, Mediterranean Sea, Egean Sea, Dardanelles, Sea of Marmora, Bosporus, Black Sea, Caucasus, Caspian Sea, river Ural, and Ural Mts.

SEAS, GULFS, STRAITS, AND ISLANDS.

§ 61. The Arctic Ocean forms—1. The Kara Sea, between Nova Zembla and Asia. 2. The Gulf of Oby. 3. The Gulf of Yenisei, and some smaller inlets.

§ 62. The Pacific Ocean forms—1. Behring's Sea, North of the Aleutian Is. 2. The Sea of Okhotsk, West of the Kurile Is. 3. The Sea of Japan, West of the Japan Is., communicating with the Sea of Okhotsk, by the Gulf of Tartary, and the Strait of La Perouse. 4. The N. Chinese Sea, opening on the West into the Yellow Sea, and communicating by the Strait of Corea with the

Sea of Japan. 5. The S. Chinese Sea, communicating by the Strait of Formosa with the N. Chinese Sea, extending southward to the extremity of Malacca, and comprehending the Gulfs of Tonquin and Siam.

§ 63. The Indian Ocean forms—1. The Bay of Bengal, between further India and Hindostan. 2. The Persian Sea, between Hindostan and Arabia, communicating by the Strait of Ormus with the Persian Gulf. 3. The Arabian Sea, West of the Persian Sea, communicating by the Strait of Bab-el-Mandeb with the Red Sea. 4. The Red Sea, between Arabia and Africa.

§ 64. The Mediterranean Sea, the Sea of Marmora, the Black Sea, and the Caspian Sea, have no branches on the coast of Asia.

§ 65. STRAITS.

Behring's Strait, separating Asia from America; the Gulf of Tartary, or Strait of Saghalien, separating Mandchouria from the I. of Saghalien; the Strait of La Perouse, separating the I. of Saghalien from the I. of Yesso; the Strait of Corea, separating Corea from the Japan Is.; the Strait of Malacca, separating Malacca from the I. of Sumatra; the Strait of Palk, between Hindostan and the I. of Ceylon; the Strait of Ormus, between Persia and Arabia; the Strait of Bab-el-Mandeb, between Arabia and Abyssinia.

§ 66. ISLANDS.

1. *In the Arctic Ocean.*—New Siberia, belonging to Russia.

2. *In the Pacific.*—The Aleutian Is., between Kamtschatka and North America; the Kurile Is., enclosing the Sea of Okhotsk, and belonging to Russia, with the exception of three to the South, which are subject to Japan; the I. of Saghalien, belonging to Russia; the Japan Is., Yesso, Niphon, Sikokf, and Kiusiu; the Chinese Is., the Loo Choo group, and Formosa, enclosing the N. Chinese Sea; Hainan, in the Gulf of Tonquin; and the small I. of Singapore, S. of Malacca, belonging to England.

3. *In the Indian Ocean.*—The Nicobar and Andaman Is., in the

Bay of Bengal; Ceylon, South of Hindostan, the Maldive and Laccadive Is., West of Hindostan; Ormus, in the Persian Gulf.

4. *In the Mediterranean.*—Cyprus, in the Levant; Rhodes, Scarpanto, Samos, Scio, Mitylene or Lesbos, in the Ægean Sea; and Marmora I., in the Sea of Marmora, all belonging to Turkey.

COAST LINE, CAPES, PENINSULAS, AND ISTHMUSES.

§ 67. THE COAST LINE is estimated at from 30,000 to 55,000 miles.

§ 68. CAPES.

C. Baba, in Asia Minor, North of Mitylene; Ras-el-Hadd, in Arabia, on the Persian Sea; Comorin, the southern point of Hindostan; Romania, the southern point of Malacca; Camboja, S. of Anam; East Cape, on Behring's Strait; Sievero Vostochni or North-east Cape, the northernmost point of the old continent.

§ 69. PENINSULAS.

Asia Minor, between the Black Sea and the Mediterranean; Arabia, between the Red Sea and the Persian Gulf; Hindostan, between the Persian Sea and the Bay of Bengal; Further India, or the eastern peninsula, between the Bay of Bengal and the South Chinese Sea; Malacca, a southern prolongation of Further India; Corea, between the Yellow Sea and the Sea of Japan; Kamtschatka, between the Sea of Okhotsk and Behring's Sea.

§ 70. ISTHMUSES.

The Isthmus of Suez connects Asia with Africa; the Isthmus of Krah connects Siam with Malacca. The other Isthmuses have no distinctive names.

SURFACE OF THE LAND.

§ 71. PHYSICAL DIVISIONS.—A branch of the Ural mountains, commencing near the source of the river Ural, runs into Asia in a south-easterly direction between the river Oby and the Caspian Sea, and unites with the Altai mountain system, which, under various names, extends across the continent from west to east; its northern slope inclining gradually towards the Arctic Ocean, its southern subsiding into vast plateaux. This

system is prolonged to the north-east by the Yablonoi and Stanavoi mountains, ending at East Cape; and detaches southward, near the source of the Amoor, a range joining the Chinese mountain system, the eastern slope of which declines to the Pacific, whilst the western stretches in groups and plateaux into the interior of Asia. From the plateau of Koko Nor—the central knot of the mountains of China—a long semi-circular chain is detached to the west, the central part of which, the Himalaya, contains the loftiest peaks on the globe; its southern slope descending towards the Indian Ocean, its northern sinking in extensive plateaux. It extends along the southern shore of the Caspian Sea, and thence turns northward to join the Caucasus. The physical divisions of Asia, therefore, are—1. A northern slope to the Arctic Ocean. 2. An eastern slope to the Pacific Ocean. 3. A southern slope to the Indian Ocean. 4. A western slope to the Mediterranean Sea. 5. The continental basin of Central Asia.

§ 72. THE SLOPE TO THE ARCTIC OCEAN is formed by the eastern side of the Ural Mts., the northern side of the Altai, and the western side of the Yablonoi and Stanavoi Mts., C. Waigatz and East Cape being its extreme points.

MOUNTAINS.—The Ural Mountains extend southward from the shores of the Arctic Ocean for more than 1,200 miles. Near the source of the River Ural a low range is detached to the S.E., which traverses the country of the Kirghis, and separates the waters of Turkistan from the basin of the Oby. At the source of the Irtish it divides into two branches, which run from W. to E., reuniting near the source of the Amoor. The Northern branch is very rugged, consisting of confused mountain masses, situated between the sources of the Yenisei and the Selinga; the Southern is composed of terraces projecting from the central plateau, and forms the girdle of the slope; these ranges may be included under the general name of the Altai mountains. They enclose between

them a plateau, which contains, besides several lakes, the sources of the Yenisei, the Selinga, and other rivers, and from which some considerable spurs are detached. Of these the principal are, the Mts. of Kolivan, between the Irtish and Oby; the Sarjan or Sayen Chain, between the Yenisei and the Angara, and the Selinghinsk Mts., forming a belt on the eastern side of Lake Baikal. These three chains are rich in mines of gold, silver, and copper. Near the source of the Amoor, the range turns to the N.E., and is prolonged between this river and the Lena, by the Yablonoi Mts., from which an uninterrupted mountain system extends, under the names of the Aldan Mts., between the Lena and the Sea of Okhotsk, and of the Stanavoi Mts., to C. East, the North-eastern extremity of Asia.

This region is watered by great rivers, flowing in parallel courses through marshy deserts, wild forests, and extensive steppes. The climate is colder than the latitude would indicate, on account of the unmitigated rigour of the polar winds. The land, frozen during nine or ten months of the year, is barren and uncultivated, producing only pasturage, wood, and metals. It is inhabited by savage tribes, and by half a million of Europeans, scattered over its vast area, of which they are the sovereigns; and into which they have introduced, in some small towns, the civilization and luxury of the West.

Coast.—Deeply indented, bordered alternately by rocks and morasses, and open to navigation only for two months in the year.

Islands.—Desert, and covered with perpetual snow. The Is. of Nova Zembla contain volcanoes; those of New Siberia are remarkable for the enormous quantity of fossil bones of the elephant, rhinoceros, and mammoth found in them.

Rivers. 1. The Oby.—2,600 miles in length; rises in the Little Altai Mts., flows from South-east to North-west, and falls into the Gulf of Oby. Its affluents are—on the right, *the Tom*, washing Tomsk, a large commercial town; and, on the left, *the Irtish*, a large river, which descends from the Great Altai, traverses L. Dzaisang, receives *the Ischim* and *the Tobol*, and waters Omsk, a Russian fortified town, and Tobolsk, the capital of Western Siberia. The basin of the Oby is crossed by hordes of Kirghis, Ostiaks, and Samoiedes. The Kirghis are nomade shepherds, of the Tartar race, under the protection of Russia: the Ostiaks are wretched savages; the scanty tribes of the Samoides are scattered along the shores of the Arctic Ocean, from the Mezen to the Lena.

2. The Yenisei, 2,900 miles in length, descends from the plateau of the Altai ranges, runs from South to North, and ends in a broad estuary. Its chief tributaries are, *the Angara, or Upper Tunguska*—a river larger than itself, issuing from L. Baikal, and watering Irkutsk, the capital of Eastern Siberia—a flourishing commercial town; and *the Lower Tunguska*, north of the former. L. Baikal also receives *the Selenga*, which passes by Kiachta—an entrepôt for the commerce of Russia and China. The right bank of the Yenisei is inhabited by Tunguses—a savage and nomade Tartar race; its left by Ostiaks, and the lower part of its basin by Samoiedes.

3. The Lena, 2,500 miles in length, springs from the mountain girdle North of L. Baikal, runs from South-west to North-east as far as Yakutsk, the chief town of this savage region, and thence from South to North. It receives *the Aldan, Vitim, Olekma, and Vilui*, and terminates amidst numerous islands, opposite the archipelago of New Siberia. The Southern part of this basin is inhabited by Tunguses; the Northern traverses the country of the Yakoots.

The Northern Slope of Asia belongs almost entirely to Russia.

§ 73. The Slope to the Pacific Ocean is formed by the southern side of the Stanavoi and Yablonoi ranges, and by the eastern side of the mountains of China, Thibet, Siam, and Malacca; East Cape and Cape Romania being its extreme points.

Mountains.—The Stanavoi Mountains are remarkable for the very considerable branch which they throw out to the South, and which forms the framework of the peninsula of Kamschatka, containing several lofty summits and terrible volcanoes.

A range called Khin-gan is detached to the South from the Yablonoi Mts., which turns westward, near the great bend of the Hoang-Ho; approaches the lofty chain of Thian Shan, which crosses Central Asia; and is finally united by various groups to the knot of Koko Nor, and to the Kuen-lun Mts. Between rivers descending from these groups—the Ma-Kiang and Meinam on one side, and the Salween on the other—runs the narrow ridge which separates the slope of the Pacific from that of the Indian Ocean, and forms the framework of the peninsula of Malacca to Cape Romania.

From this series of mountains many chains are detached into the interior. 1. A chain stretches Eastward from the Khin-gan, which

bifurcates near the sea, sending one branch Southward through the peninsula of Corea—the other Northward, along the coast of Mandchouria to the mouth of the Amoor. 2. The Yun-ling and Peling Chains separate the basins of the Hoang-Ho and Yang-tse-Kiang. 3. A narrow ridge lies between the Yang-tse-Kiang and the Ma-Kiang, which divides at the Highland of Yunnan into two branches—one running from West to East, between the Yang-tse-Kiang and the Chinese Sea; the other from North to South, between the Ma-Kiang and the Gulf of Tonquin.

This slope—the extreme points of which border on the Arctic Circle and on the Equator—has too great a variety of climate and physical features to admit of general description. It is, however, remarkable for the magnitude, extent, and intricacy of its mountain system, and for the almost total absence of steppes and marshy plains. The rivers rise in the great central plateau, descending between the mountains forming its eastern declivity.

Coast.—Generally steep, except at the mouths of the rivers, broken into a multitude of gulfs, and fringed throughout its entire length with an uninterrupted chain of islands. The space between these islands and the continent is filled by a succession of inland seas, communicating with numerous canals, which unite the provinces of this great Eastern Empire—where an immense population lives isolated from the rest of the world, under laws and civilization of great antiquity.

Islands.—The chain of islands begins at C. Lopatka, the southern point of Kamtschatka, and continues to the Strait of Malacca. The first are the Kurile Is., thirty-three in number, belonging to Russia, and almost uninhabited. They enclose in the Sea of Okhotsk, the I. of Saghalien, and join the archipelago of Japan.

Japan consists of four principal islands; Yesso, Niphon, Kiusiu, and Sikokf—fertile, well cultivated, abounding in minerals, and traversed by volcanic mountains attaining a height of from 8,000 to 12,000 feet. Yeddo, the capital, situated on the I. of Niphon, is a large, rich, and populous city; its port, Kanagawa, has lately been opened for foreign commerce. These islands form a flourishing empire, containing from 20,000,000 to 25,000,000 of inhabitants. South of Kiusiu are the Loo Choo group, the large island of Formosa in the Chinese Sea, and that of Hainan in the Gulf of Tonquin—all belonging to China. The chain is continued to the South by the Philippine and Sunda Is., which, however, form part of Oceania.

RIVERS.—1. THE AMOOR is formed by the union of the *Kerlon* with the *Onon*, or *Shilka*. The former is the principal stream; it traverses the sandy plains forming the Northern part of the Desert of Shamo, and separates the Russian and Chinese Empires. These streams meet North of the Khin-gan Chain, flowing thence as the Amoor through a vast basin, enclosed on all sides by mountains. It traverses Mandchouria—inhabited by a savage Tungusian tribe, receives *the Songari* and other streams; and, after a course of 2,300 miles, falls into the Gulf of Tartary.

2. THE PEIHO descends from the Tae-yuen Mts., washes Pekin, the capital of China, and terminates in the Bay of Leao-Tong.

3. THE HOANG-HO, OR YELLOW RIVER, 2,600 miles in length, rises in the Koko Nor Mts., pursues a very winding course through the interior of China; receives *the Weyho*, and ends in the Yellow Sea.

4. THE YANG-TSE-KIANG, OR BLUE RIVER, 3,200 miles in length, descends from the plateaux of Upper Thibet, receives the waters of Lakes Tontin and Pagang, and several large affluents from the Koko Nor, waters Nankin, and ends in the North Chinese Sea.

5. The SI KIANG rises in the plateau of Yunnan, waters Canton, and falls into the Bay of Canton—at the entrance to which are Hong-Kong—a small island ceded by the Chinese to the English in 1842; and Macao, a town belonging to the Portuguese.

6. THE SONG-HAE traverses Yunnan and Tonquin, and terminates in the Gulf of Tonquin.

7. THE MA-KIANG rises in the mountains of Eastern Thibet, flows from North to South through Laos and Cambodia, and empties itself by several mouths into the South Chinese Sea.

8. THE MEINAM rises in the ridge which separates the Salween from the Ma-Kiang, traverses Siam from North to South, and ends in the Gulf of Siam, below Bankok.

§ 74. THE SLOPE TO THE INDIAN OCEAN is formed by the western side of the mountains of Malacca and of the Highlands running between the Salween and Ma-Kiang rivers to the Kuen-lun mountains; by the southern side of the Himalaya, the Hindoo Koosh, and the mountains of Persia and Armenia; and by the eastern side of the mountains of Syria and Arabia; Cape Romania and Cape Bab-el-mandeb being its extreme points.

MOUNTAINS.—Of the mountains composing Thibet, those of the Kuen-lun subside into the plateaux of Central Thibet, the others cross the basins of the Salween and Irawaddy; the latter at a place remarkable as being the point of intersection of the Chinese, British, and Burman Empires, and also as the opening by which the Irawaddy escapes from the Central plateau. Near this opening begins the long and massive wall of the Himalaya, which, extending from east to west, and dividing the basins of the Brahmapootra and Ganges from the upper course of the Irawaddy, separates Hindostan from Thibet, culminates in Mount Everest 29,002 feet, the highest mountain on the globe, and finally inclines northward, uniting with the groups of the Central plateau. From this part of the range descend to the S.E. the Irawaddy; to the W. the Indus; and to the S. the Ganges. Pursuing a N.W. direction, the Himalaya opens a passage for the Sutlej, an affluent of the Indus, and becomes entangled in a mass of elevations, which may be regarded as the central knot of Asia. Four chains diverge hence at right angles: the Himalaya S.E., the Kuen-lun E., the Bolor Tagh N., and the Hindoo Koosh W. The Kuen-lun, proceeding from west to east, forms the framework of the central Mts. of Thibet; the Bolor Tagh will be met with again in the Central plateau; the Hindoo Koosh divides between Cabool and Kandahar into two branches, of which *the Northern*, crossing Khorassan, unites with the Elburz Mts., south of the Caspian Sea; *the Southern* passes through Affghanistan and Beloochistan, under the name of the Soliman Mts., extends along the Persian Gulf, and thence turning northward separates Persia from the basin of the Tigris, passes between Lakes Van and Urumiah, and finally blends with the chaos of mountains spreading over the southern part of the Isthmus of the Caucasus. The slope is prolonged towards the Mediterranean by the Anti-Taurus, and Amanus or Alma Dagh chains, and thence stretches southward along the Syrian Highland, to the Isthmus of Suez, and by the mountains of Western Arabia to C. Bab-el-mandeb.

From the Himalaya several chains are detached to the south, of which the chief are the Aracan Mts. between the Brahmapootra and Irawaddy, terminating at C. Negrais; a chain lying between the Sutlej and the Jumna, one branch of which traverses the peninsula of Guzerat, the other unites with the Vindhya mountains; and

the Eastern and Western Ghauts, forming the framework of the peninsula of Hindostan, which they divide into two unequal slopes; the former extending along the Bay of Bengal, in a succession of terraces from 1,500 to 3,000 feet in height; the latter commencing at the mouth of the Nerbudda, skirting the Malabar coast at an elevation of from 2,000 to 7,000 feet, and ending at C. Comorin.

The eastern part of this vast slope, verging on the Equator, sheltered from the north by the highest mountains on the globe, watered by magnificent rivers, and prolonged to the south in a superb peninsula, is one of the richest and most populous regions in the world. Its aspect is, however, monotonous; the mountains, grand in outline, are deficient in picturesque details; the great plains, scorched by the sun, or inundated by the waters, are fertile but undiversified; and the extremes of heat and moisture to which the soil is exposed, whilst they produce a splendid vegetation, render the climate unhealthy and enervating. The western part, placed under nearly the same latitude, and also stretching southward in a large peninsula, presents an appearance entirely different. Vast plateaux and sandy deserts cover a large portion of its surface, and its mountains send down only scanty streams, but they contain varied scenery, delicious valleys, and a healthy climate.

Coast.—The Eastern or *Coromandel* coast of Hindostan is generally low, and exposed to a dangerous surf, which makes landing difficult: the Western or *Malabar* coast is steep, and indented by bays and harbours. The shores of the Persian Gulf are famous for pearl fisheries; those of Arabia are rugged and inaccessible.

Islands.—The Nicobar and Andaman Isles, in the Bay of Bengal; Ceylon, a large mountainous and fertile island south of Hindostan, belonging to England; the Maldive and Laccadive Is., off the coast of Malabar, consisting of numerous small islands of coral formation.

Rivers.—1. The Salween rises in the mountains of the interior of Thibet, flows from north to south through Thibet and Further India, and ends in the Gulf of Martaban.

2. The Irawaddy descends from the northern slope of the Himalaya mountains, and runs parallel with them to their eastern extremity, where it turns southward, flows through Further India, and falls into the Gulf of Martaban after a course of 1,200 miles.

3. The Ganges, 1,500 miles in length, rises on the southern side of the Himalaya, flows in a S.E. direction through the plain of

Hindostan; receives on the left the *Goomtee*, *Gogra*, *Gunduck*, and *Brahmapootra*; on the right the *Jumna*, *Chumbul*, and *Sone*, and empties its waters into the Bay of Bengal by numerous mouths, enclosing a vast Delta. The easternmost arm, into which the Brahmapootra falls, is the largest; the westernmost, called *the Hooghly*, on which Calcutta is built, is the one generally navigated.

4. THE MAHANUDDY rises in the Vindhya mountains, and ends in the Bay of Bengal.

5. THE GODAVERY rises in the Western Ghauts, traverses the Deccan, and falls into the Bay of Bengal.

6. THE KISTNAH rises in the Western Ghauts, receives many affluents, and enters the Bay of Bengal by several mouths.

7. THE CAVERY crosses the Mysore, and ends at Tranquebar.

8. THE TAPTY descends from the Vindhya mountains, and flows westward into the Gulf of Cambay.

9. THE NERBUDDA rises in the Vindhya chain, traverses the Mahratta country, and ends in the Gulf of Cambay.

10. THE INDUS issues from the northern slope of the Himalaya mountains, passes round their western extremity, and flows in a south-western course of 1,700 miles. It receives on the left, from the district called the Punjaub, five tributaries—the *Geloum*, the *Chenaub*, the *Ravee*, the *Beyas*, and the *Sutlej*; and on the right the *Caubul*, and falls into the Persian Sea by several mouths, forming a Delta smaller than that of the Ganges.

11. THE TIGRIS, 1,100 miles, and THE EUPHRATES, 1,700 miles in length, unite at Kurnah, in the lower part of the Babylonian plain, or *Irak Arabi*, in a single stream called the SHAT-EL-ARAB. Of these rivers *the Tigris* is formed by two streams rising from a branch of the Taurus chain, receives the *Khabur*, *Zab*, and other affluents, passes Diarbekir, Mosul near the ruins of Nineveh, and Bagdad. The *Euphrates* springs from two streams, descending from the mountains of Armenia, receives several affluents, separates Mesopotamia from Syria, leaves on the left-hand the ruins of Palmyra or Tadmor, and passes Hillah, near the ruins of ancient Babylon. The Shat-el-Arab receives the *Kerkhah* and *Kuran*, and after a course of 100 miles discharges the united waters of the Tigris and Euphrates into the head of the Persian Gulf.

§ 75. SLOPE TO THE MEDITERRANEAN SEA. — This

slope is formed by the western side of the Lebanon, Taurus, and Caucasus ranges, and consists of the peninsula of Anatolia and two strips of land along the coasts of the Mediterranean and Black Seas. It is connected at its two extremities by the Isthmus of Suez and the Strait of Yenikale with Africa and Europe, and may be divided into three slopes—those of Lebanon or Syria, of the peninsula of Anatolia, and of the Caucasus.

Mountains.—The Lebanon range is united, through the Alma Dagh, or Amanus, with the Anti-Taurus mountains, which form the framework of Anatolia, send out several spurs, with a general direction from east to west, and are prolonged between the Black Sea and the Caspian by a southern branch of the Caucasus, which rejoins the principal chain near Mount Elburz.

The interior of this slope forms a high plateau, descending gradually to the shores of the Mediterranean, traversed by chains and groups of mountains, between which lie fertile valleys, watered by short and rapid streams. The climate is delightful, the air clear, the soil fertile, especially near the coast. But these natural advantages are lost by neglect, the country is ill cultivated, thinly peopled, and desolate.

Coast.—The coast is precipitous and unbroken, excepting in the peninsula, where it forms several gulfs, and is bordered with islands.

Islands.—The principal of these are Cyprus, a large and beautiful island in the Levant; Rhodes; Samos; Scio; Mytelene; Patmos; and Tenedos, the key of the Hellespont.

The Slope of Lebanon, or the Syrian Highland, contains the basins of the Orontes and other small streams flowing into the Mediterranean, and the inland basin of the Jordan.

1. The Orontes descends from the eastern side of Anti-Libanus, and ends below Antioch.

2. The Jordan rises in Mt. Hermon, on the western side of Anti-Libanus, traverses Lake Merom and the Sea of Galilee, flows through the border of the valley of Esdraelon, the most fertile part of Judea, watered by the Kishon, and through Samaria, receives the *Yarmouk* and *Jabbok*, and after a very winding course ends in the Dead Sea.

The Slope of the Peninsula of Anatolia contains the basins of

1. THE MŒANDER, which flows from east to west, receives numerous affluents, and falls into the Egean Sea. 2. THE EDREMOS, which flows into the Sea of Marmora. 3. THE SAKARIEH, which ends in the Black Sea. 4. THE KIZIL IRMAK, 500 miles in length, the largest river in the peninsula, receiving the *Gok*, and falling into the Black Sea by two mouths.

The Slope of the Caucasus contains the basin of
THE RION OR PHAZ, falling into the Black Sea.

§ 76. THE CONTINENTAL BASIN OF CENTRAL ASIA, comprising the Slope to the Caspian Sea, and the Central Plateau.

SLOPE TO THE CASPIAN SEA.—This slope is formed on the west by the Caucasus, on the south by the Elburz, Korassan, and Hindoo Koosh Mountains; on the east by the Bolor Tagh, Thian-Shan, and Ala-Tau Mountains; and on the north by the Ural Mountains It is divided into two plateaux, those of the Caspian and the Sea of Aral, enclosing a surface of 57,000 square miles, depressed below the level of the ocean; the Caspian Sea, the lowest part of this singular depression, being eighty-three feet below the sea-level.

MOUNTAINS.—Those of the west, north, and south, have been already described. The Bolor Tagh on the east extend northward from the knot of the Himalaya, Hindoo Koosh, and Kuen-lun chains, separating Turkistan from Thibet, then taking the name of Thian-Shan, bend to the north-west, between the basin of the Sea of Aral and the Central plateau, dividing near the source of the *Ili*, a feeder of Lake Balkash, into two branches; one, retaining the name of Thian-Shan, running east, the other called the Ala-Tau pursuing a northern course to the Altai.

RIVERS.—1. THE KUR, 550 miles in length, rises in the mountains of Erzeroum, receives the *Aras*, and ends in the Caspian Sea.

2. THE JIHON or OXUS is formed by several streams descending from the Bolor, Hindoo Koosh, and Ala-tau Mts., flows from east to west, and after a course of 1,300 miles, falls into the Sea of Aral.

3. THE SIHON OR JAXARTES, 1,150 miles long, rises in the Thian-

Shan chain, flows in a direction nearly parallel to that of the Jihon, and falls by several mouths into the Sea of Aral.

Central or Chinese Plateau.—This immense region of deserts and sandy plains is encircled on the N. by the the Altai and Yablonoi Mts.; on the E. by the Khingan, and In-shan Mts., and the knot of the Koko-Nor; on the S. by the Kuen-lun Mts.; on the W. by the Bolor, Thian-Shan, and Ala-Tau Mts. These mountains generally subside in the plateau without throwing out branches, excepting on the N.W., where the detached secondary chains of the Altai and Thian-Shan form a very mountainous country. The most remarkable of these chains is the eastern branch of the Thian-Shan, which extends to the desert of Shamo, and divides the Central plateau into two parts. In the northern division lakes and rivers are numerous, especially on its western border; in the interior, amidst frightful wildernesses, grassy steppes are found, over which roam wandering tribes of Kirghis. In the southern portion the streams are more scanty, and are lost in the sands or in small brackish lakes; there is, however, one considerable river, the Tarim.

The Tarim, 900 miles long, is formed by three streams, rising on the southern border of the Central plateau. It waters Yarkand, and falls into Lake Lob in the centre of Asia.

§77. Lakes.—The Caspian Sea, between Europe and Asia, the largest lake in the world, lying in a depressed region, its surface being 83 feet below the level of the sea, and covering 130,000 square miles. The Sea of Aral, east of the Caspian Sea, 26,000 square miles; Lake Baikal, on the northern side of the Altai Mountains, 15,000 square miles; Lakes Dzaizang, Ubsa, Balkash, Issik, Lob, Koko Nor, and Tengri Nor, all in or near the Central plateau; Lakes Ton-tin and Pagang, in China; Lake Zurrah, in Persia; Lakes Urumiah and Van, in Armenia; Lake Isnik, in Anatolia; Lake Tiberias, or the Sea of Galilee; and the Dead Sea in Palestine.

AFRICA.

§ 78. POSITION.—Africa, the third division of the Old Continent, forms a large peninsula, connected with Asia by the Isthmus of Suez. It lies between the 38th parallel of N. and the 35th of S. lat.; and between the 18th meridian of W., and the 52nd of E. long.

Extreme Points.—North, C. Blanco 37° 21′ N. lat.; South, C. Agulhas 34° 50′ S. lat.; West, C. Verde 17° 40′ W. long.; East, C. Guardafui 51° 10′ E. longitude.

Dimensions.—*Greatest length* from North to South, 5,000 miles. *Greatest breadth* from East to West, 4,600 miles. *Area*, not including islands, about 12,000,000 square miles.

Form.—The general or *normal* shape is shown by lines connecting C. Guardafui, C. Agulhas, C. of Good Hope, the I. of Fernando Po, C. Verde, C. Spartel, C. Bon, the Isthmus of Suez, and the Strait of Bab-el-Mandeb.

§ 79. BOUNDARIES.—*North*, the Mediterranean Sea and Strait of Gibraltar; *West*, the Atlantic Ocean; *East*, the Isthmus of Suez, Red Sea, Strait of Bab-el-Mandeb, Gulf of Aden, and Indian Ocean.

SEAS, GULFS, STRAITS, AND ISLANDS.

§ 80. The Mediterranean Sea forms—1. The Gulf of Cabes on the coast of Tunis. 2. The Gulf of Sidra on the coast of Tripoli.

§ 81. The Atlantic Ocean forms — 1. The Gulf of Guinea, extending from C. Palmas to C. Lopez, and including two smaller bays, the Bight of Benin and the Bight of Biafra, situated at its eastern extremity. 2. Walvisch Bay. 3. St. Helena Bay. 4. Table Bay, near the Cape of Good Hope.

§ 82. The Indian Ocean forms—1. Algoa Bay, S.E. of Capé Colony. 2. Delagoa Bay, N. of Caffraria.

3. Sofala Bay. 4. The Mozambique Channel, between Mozambique and Madagascar. 5. The Gulf of Aden, between Africa and Arabia, communicating with the Red Sea by the Strait of Bab-el-Mandeb. 6. The Red Sea, between Africa and Arabia, terminating at its northern extremity in the two small gulfs of Suez and Akabah.

§ 83. STRAITS.

The Strait of Gibraltar, separating Africa from Europe, and the Strait of Bab-el-Mandeb, separating Africa from Asia.

§ 84. ISLANDS.

1. *In the Mediterranean Sea*, Jerba and the Karkenna Is., belonging to Tunis.

2. *In the Atlantic Ocean*, Madeira opposite to Morocco, belonging to Portugal; the Canary Is., S. of Madeira, belonging to Spain; the Cape Verde Is., opposite C. Verde, belonging to Portugal; the Bissagos Is., at the mouth of the Rio Grande; the Is. of Los, N. of Sierra Leone, belonging to England; Fernando Po, in the Bight of Biafra, belonging to Spain; Princes Is. and St. Thomas, in the Gulf of Guinea, belonging to Portugal; and Annabon Is., belonging to Spain; Ascension I., 960 miles, and St. Helena 1,200 miles distant from the African Coast, belonging to England; and the Is. of Tristan d'Acunha, S. W. of the C. of Good Hope.

3. *In the Indian Ocean.*—Madagascar, 960 miles in length, and from 200 to 300 in breadth; Bourbon or Reunion, and Mauritius, E. of Madagascar, the former belonging to France, and the latter to England; the Comoro Is., N. of the Mozambique Channel, some of which belong to France; the Amirantes and Seychelles Is., N. of Madagascar; and Socotra, at the entrance of the Gulf of Aden.

COAST LINE, CAPES, AND ISTHMUSES.

§ 85. THE COAST LINE is estimated at 16,000 miles.

§ 86. CAPES.

On the Mediterranean Sea.—C. Razat, N. of the plateau of Barca; C. Bon, N.E. of Tunis; C. Blanco or Ras-el Abiad, N.W. of Tunis, the northernmost point of Africa; C. Ceuta E., and C. Spartel W., of the Strait of Gibraltar. *On the Atlantic.*—C. Nun,

S.W. of Morocco; C. Bojador and C. Blanco, on the coast of the Sahara; C. Verde, the westernmost point of Africa; C. Palmas, C. Three Points, C. Formosa, and C. Lopez, on the coast of Guinea; C. Negro and C. Frio, on the coast of Benguela; C. of Good Hope, S.W. of Africa, and C. Agulhas, its southernmost point. *On the Indian Ocean.*—C. Corrientes S., and C. Delgado N. of the Mozambique Channel; and C. Guardafui at the entrance of the Gulf of Aden, the easternmost point of Africa.

§ 87. ISTHMUSES.

The Isthmus of Suez, seventy-three miles broad, separating the Mediterranean from the Red Sea, and connecting Asia and Africa.

SURFACE OF THE LAND.

§ 88. PHYSICAL DIVISIONS.—Little is at present known with certainty of Central Africa and its mountain systems. It appears, however, that terraces, rising in gradual succession one above the other, extend generally from the coast into the interior.

§ 89. MOUNTAINS.

1. THE ATLAS MOUNTAINS, extending from C. Nun W. to C. Bon E., and culminating in Mt. Miltsin, S.E. of Morocco, 11,400 feet in height. A branch is detached north of the main stem, towards the Strait of Gibraltar, and on the south are several parallel chains of inferior elevation.

2. THE RED-SEA CHAIN AND THE MOUNTAINS OF ABYSSINIA; the former a low narrow chain between the Nile and the Red Sea; the latter consisting of groups and masses of considerable elevation; Abba-jared, their highest point, being estimated at 15,000 feet.

3. THE LUPATA MOUNTAINS, west of Mozambique and Sofala.

4. THE DRAKENBERG AND SNIEWBERG OR NIEUVELDT MOUNTAINS, commencing south of the River Limpopo, and extending under various local names in a southern and western direction to the Cape of Good Hope; culminant point, Compass Berg, 10,250 feet in height. TABLE MOUNTAIN, S. of Cape Town, so called from its broad flat top, belongs to a detached group, and is 3,582 feet in height.

5. THE KONG MOUNTAINS, running parallel with the Gulf of

Guinea, and attaining, at their western extremity, a considerable elevation. CAMEROON MOUNTAIN, near the coast of the Bight of Biafra, is a detached mass nearly 13,000 feet in height.

§ 90. SLOPES.—1. A slope to the Mediterranean Sea. 2. A slope to the Atlantic Ocean. 3. A slope to the Indian Ocean and the seas connected with it. 4. The continental basin of Lake Chad.

The geography of the interior being imperfectly known, and the position of its mountain ranges yet undetermined, it is difficult accurately to ascertain the watersheds which define these slopes; and the sub-divisions can only be fixed approximately by means of their outer points, the capes. These are, generally, only the extremities of mountain ranges; the sub-divisions adopted will, therefore, probably coincide with future discoveries.

§ 91. THE SLOPE TO THE MEDITERRANEAN SEA contains —1. *The basin of the Nile*, between the Isthmus of Suez and C. Razat. 2. *A slope to the gulfs of Sidra and Cabes* between C. Razat and C. Bon. 3. *A northern slope of the Atlas Mts.*, between C. Bon and C. Spartel.

I. BASIN OF THE NILE.—

The boundary of the Nile basin can be only imperfectly defined. It begins with the sandy *dunes* which form the Isthmus of Suez, and continues along the coast of the Red Sea in a chain of low hills, which become higher as they approach Nubia, and unite near the Strait of Bab-el-Mandeb with the mountains of Abyssinia, —lofty but little known ranges extending in a S.W. direction. The upper part of the basin, enclosing the sources of the White Nile, is an unexplored region. On the west it is bounded by the heights of Darfur, and of the Nubian and Lybian Deserts.

THE NILE, the only large river entering the Mediterranean from the coast of Africa, flows from South to North, through Abyssinia, Nubia, and Egypt, and is formed by the confluence of two streams,—the Bahr el Abiad, or White Nile, *West*; and the Bahr el Asrek, or Blue Nile, *East*. *The White Nile*, the principal branch, has not yet been explored to its source; but it probably issues, at about four degrees South of the Equator, from the

great lake Nyanza. *The Blue Nile* rises in the mountains of Abyssinia, flows through Lake Dembea, and joins the White River near the town of Khartoom. The only important tributary of the Nile below this junction is *the Atbara*, or *Tacazze*, which descends from the mountains of Abyssinia, and forms the Eastern boundary of the Isle of Meroe. From this point to its mouth, a distance of more than 1,400 miles, the Nile does not receive a single affluent. The middle or Nubian part of its course is interrupted by cataracts, or rather *rapids*, the water falling over successive steps of inconsiderable height. There are six of these cataracts, the first near Assouan, on the southern border of Egypt; the others in Nubia.

The Nile overflows its banks every year. Swelled by the rains of the torrid zone, it begins to rise in Egypt at the summer solstice, continues to increase for about a hundred days, attains its greatest height in autumn, and by the middle of winter has again returned within its banks. The mud or slime deposited by the inundation fertilizes the soil which has been covered by it, and the harvest grows and ripens in winter and spring. In Upper Egypt, the maximum rise of the water is 30 feet; near Cairo, 23 feet; and in the low plains of the Delta considerably less. Numerous canals have been constructed to retain the subsiding waters for the purposes of irrigation, and the progress of the flood is watched with extreme anxiety. If it much exceeds its average level, great loss and damage are caused; if it falls below it, famine is the inevitable result. The Nile being the *only water* in Egypt, is used by its inhabitants for all domestic purposes, and is perfectly sweet and pure.

The entire length of the Nile is supposed to be little less than 3,000 miles; and from its junction with the *Atbara* it has a course of more than 1,400 miles. Below Cairo, and about 100 miles from the sea, it divides into two principal branches, enclosing a rich and extensive Delta, of triangular form, and more than 90 miles across at the coast. The western branch ends at Rosetta, and the eastern at Damietta. The Nile, in ancient times, had seven mouths, but two only are now navigable.

This basin is unique in its natural features, and in its history. It owes alike its fertility and its glorious traditions to its river, which, for more than 2,000 miles, flows between two ranges of limestone rocks, through a narrow valley, varying from less than

two miles in breadth to about ten, whose green thread of rich verdure contrasts brightly with the arid deserts beyond.

The civilization of Egypt dates from the earliest period of history, and it contains the oldest monuments in the world. The great pyramids, the stupendous ruins and sculptured tombs of ancient Thebes, at Karnak and Luxor, and the temples of Philœ, Ipsambul, and Denderah, still excite the admiration of travellers, and promise long to defy the ravages of time.

II. THE SLOPE TO THE GULFS OF SIDRA AND CABES contains no river deserving notice. It is bounded by the Lybian desert, and by a series of inconsiderable heights, extending to the Atlas range. It consists of parched and sandy deserts, relieved by verdant oases, with some fertile tracts near the sea-shore, and contains the plateau of Barca, the regency of Tripoli, and part of Tunis.

III. THE NORTHERN SLOPE OF THE ATLAS MOUNTAINS, beween C. Bon and C. Spartel. Its rivers are torrents, navigable in winter for a short distance, but dry in summer. The chief are—

1. THE MEJERDAH, ending near Tunis.
2. THE CHELLIF, or MULAWA, flowing through Algeria.
3. THE MULAWIA, entering the Mediterranean E. of Melilla.

This slope contains part of Tunis, Algeria, belonging to France, and the empire of Morocco. Its Northern part is called *the Tell*, and consists of arable land, producing abundance of grain; the Southern, *the Algerine Sahara*, or country of Dates, merges on the South into the Great Desert.

COAST.—The slope of Africa to the Mediterranean comprehends the most irregular and indented part of its shores. The coast of Barca, *the ancient Cyrenaica*, and part of that of Algiers and Morocco, are elevated. The coast of Egypt is flat and low, and intersected by shallow salt-water lakes, communicating with the sea by narrow openings in the sandy ridges surrounding them. Of these the principal are L. Mareotis and L. Menzaleh.

§ 92. THE SLOPE TO THE ATLANTIC OCEAN contains—1. *The North-Western slope of Morocco*, between C. Spartel and C. Nun. 2. *The slope of Sahara*, between C. Nun. and C. Blanco. 3. *The slope of Senegambia*, between C. Blanco and C. Verga. 4. *The slope to the Northern coast*

of the Gulf of Guinea, between C. Verga and C Lopez. 5. *A slope to the coast of Lower Guinea,* between C. Lopez and C. Frio. 6. *The Desert of Cimbebasia,* S. of C. Frio. 7. *The basin of the Orange River,* extending to the chain of mountains ending at the C. of Good Hope. 8. *The Western slope of Cape Colony.*

I.—The Western Slope of Morocco is watered by—

1. The Sebos, bathing Fez, and ending at Mahedi.

The Tensift, flowing near Morocco, the capital of the empire.

The rivers of this slope are insignificant, drying up in summer. The climate resembles that of the S. of Spain; the soil is productive, but the country is ill governed, neglected, and barbarous.

II.—The Slope of Sahara possesses few and scanty streams. This vast plateau, ranging from 1,000 to 1,500 feet in elevation, lies between the southern border of the Atlas system, and the northern girdle of the basin of the Niger, and between the Atlantic and the Western boundary of the basin of the Nile. It occupies more than a fourth part of the entire area of Africa, its average breadth, from N. to S., being 1,000 miles; its length, from W. to E., little less than 3,000 miles. The Sahara is an extensive and frightful desert. Its surface is covered chiefly with shifting sands, interspersed with rocks and hillocks, destitute of water and of vegetation, and exposed to the fierce heat of the sun, aggravated often by a suffocating wind, called the *simoom.* It would be impossible to cross it, but for spots of verdure rising at intervals in the waste, called *oases,* caused by the presence of springs, which nourish a tropical vegetation. Some of these oases are of considerable extent, supporting a numerous population, but the greater number are small. The most remarkable are *Tuat* or *Twat,* S. of Algeria; *Gadamis,* S.W. of Tripoli; *Fezzan,* S.E. of Tripoli; *Ghat,* W. of Fezzan; *Asben,* N.W. of L. Chad; and *Siwah,* in the Lybian desert. The most valuable product of the desert is salt, of which vast rocks are found in its western part. It has also salt springs. The coast has few accessible points.

III.—The Slope of Senegambia contains the basins of three rivers—the Senegal, the Gambia, and the Rio Grande.

This slope is defined by the Sahara, and by mountain ranges

extending northward from the western extremity of the Kong Mts. It is hilly, and well watered. The intense heat and the humidity caused by the heavy rains produce a luxuriant vegetation, but render the climate very unhealthy.

1. THE SENEGAL, 900 miles in length, rises on the Eastern boundary of the slope, and flows in a N.W. direction. It receives many affluents, and forms near its mouth the I. of St. Louis, a French settlement. The heights separating the basins of the Senegal and Gambia end at C. Verde.

2. THE GAMBIA rises near the source of the Fateme, an affluent of the Senegal; flows W. for 650 miles, and ends in several mouths, on one of which is the I. of Bathurst, an English settlement.

3. THE RIO GRANDE, 400 miles in length, ends in a broad embouchure opposite the Bissagos Is.

IV. THE SLOPE TO THE NORTHERN COAST OF THE GULF OF GUINEA contains the great basin of the Niger.

THE NIGER, OR QUORRA, rises on the northern side of the Kong Mts., and has a nearly semicircular course, flowing N.E. as far as Timbuctoo, and thence in a S.E. direction. Its total length is probably not less than from 2,000 to 2,500 miles. It receives the *Sokoto*, the *Ghulby*, and the *Benuwe*, or *Chadda*, and enters the Gulf of Guinea in several mouths, watering a vast delta.

The basin of the Niger is still imperfectly known, though its exploration has cost much labour, and many valuable lives.

This slope is traversed by the Kong Mts., and includes the country known under the general name of Upper Guinea. It is a rich, well watered, and intensely hot region, extremely fatal to European life. The English, Dutch, Portuguese, and French have settlements on the coast, and an American colony for free negroes, called Liberia, has been founded near C. Mesurado.

V. THE SLOPE TO THE COAST OF LOWER GUINEA contains

1. THE ZAIRE, OR CONGO, a large but little known river, ending N. of Pt. Padron, in a broad embouchure.

2. THE COANZA, entering the sea S. of St. Paul de Loando. The coast of this slope forms a slight curve, and is low and unhealthy. Its interior is mountainous, and well supplied with streams.

VI. THE DESERT OF CIMBEBASIA lies between C. Negro and the northern boundary of the basin of the Orange River. It is an arid and desolate region, without water, vegetation, or inhabitants.

VII. THE BASIN OF THE GREAT ORANGE RIVER.

This vast basin is surrounded on all sides by mountains, or lofty terraces, between which stretch high plains, called *Karroos*. These are dry and arid wastes in summer, but in the rainy season covered with rich vegetation. The Nieuveldt Mts., which traverse C. Colony, form the Southern boundary of the Orange River basin.

THE ORANGE RIVER, OR GARIEP, rises in the Drakenberg Mountains, and pursues a western course of 1,000 miles. It receives many tributaries, the principal of which are the *Hartebeest*, *Kuruman*, and *Great Fish Rivers*.

VIII. THE WESTERN SLOPE OF CAPE COLONY has no rivers of importance. ELEPHANT RIVER, the largest, enters the Atlantic midway between the Orange River and Cape Town.

COAST.—*The Western* or *Atlantic Coast* of Africa presents few salient points. It is comparatively straight and unbroken, and generally low, swampy, and unhealthy.

§ 93. THE SLOPE TO THE INDIAN OCEAN contains—1. *The southern slope of Cape Colony and Caffraria*, between the C. of Good Hope and Delagoa Bay. 2. *A slope to the Mozambique Channel*, between C. Corrientes and C. Delgado. 3. *The coasts of Zanzibar and Ajan* to C. Guardafui. 4. *A slope to the Gulf of Aden.* 5. *A slope to the Red Sea.*

I. THE SOUTHERN SLOPE OF CAPE COLONY AND CAFFRARIA is watered by many short and shallow streams. The chief are—1. THE GAURITZ. 2. THE GAMTOOS. 3. THE GREAT FISH. 4. THE KEISKAMMA rivers. This slope is narrow, and rises in successive steps or terraces, from S. to N. The mountain ranges, of which there are three, are parallel with the coast, and with each other. The climate is temperate and healthy, and very dry; the vegetation rich and varied. C. Colony belongs to England.

II. THE SLOPE TO THE MOZAMBIQUE CHANNEL contains the basins of the Zambesi, Limpopo, and several other rivers, very imperfectly known to Europeans.

THE ZAMBESI rises in the interior of Africa, flows through Lake Dilolo, and receives the *Leeba*, *Chobe*, *Kafue*, *Shire*, and other affluents. It has probably a course of not less than 1,400 miles.

At about 900 miles from its mouth it forms a magnificent cataract, 100 feet in depth, to which the name of "Victoria Falls" has been given by Dr. Livingstone, the first explorer of this great river.

Mozambique is a fertile and populous region. Near the coast are several Portuguese settlements, of which the town of Mozambique is the capital.

III. THE SLOPE TO THE COASTS OF ZANZIBAR AND AJAN is watered by several rivers, among which are the LUFIJI, SABAKI, OXY, JUBA, and WEBBE. This is an almost unknown region, lying beneath a burning sun, and thinly peopled by savage tribes.

IV. THE SLOPE TO THE GULF OF ADEN has no rivers. It contains the coast of Adel—a savage and desolate region.

V. THE SLOPE TO THE RED SEA is steep, narrow, and desert. It belongs to Abyssinia, Nubia, and Egypt.

COAST.—The eastern coast of Africa is the least known of her shores, and seems to present few claims to notice. It resembles in its general aspect that of the Atlantic Ocean.

§ 94. THE CONTINENTAL BASIN OF LAKE CHAD.

This lake is situated in Central Africa, and appears to collect the waters of the countries between the basins of the Nile and Niger. It receives on the W. the WANI, and on the S.E. the SHARI. L. Chad is 840 feet above the sea, and probably occupies a space of several thousand miles; this area is, however, much diminished during the dry season. Its waters are fresh and clear.

§ 95. LAKES.

Besides L. Chad, Africa contains—*L. Dembea*, in Abyssinia, 1,400 square miles; *L. Assal*, near the Gulf of Aden, 705 feet below the level of the sea; *L. Keroun*, in Egypt, 130 square miles; *L. Nyanza*, at the Equator, 3,000 feet above the sea, and of great but unknown extent; *L. Tanganyika*, S. of L. Nyanza, 1,800 feet above the sea, 300 miles long, by 30 or 40 broad; *L. Nyassa*, N. of the Zambesi, probably more than a hundred miles long; *L. Ngami*, in S. Africa, supposed to be 70 miles long.

NORTH AMERICA.

§ 96. Position.—North America, one of the two great peninsulas connected by the Isthmus of Panama which constitute the New World, lies between the 8th and 72nd parallels of N. lat.; and between the 55th and 168th meridians of W. long.

Extreme Points.—North. The Northern extremity of the Peninsula of Boothia, 72° N. lat.; South, C. Mariato 7° 15′ N. lat.; East, C. Charles 55° 30′ W. long.; West, C. Prince of Wales 168° W. longitude.

Dimensions.—*Greatest length* from North to South, 5,600 miles. *Greatest breadth* from East to West, 3,120 miles. *Area*, not including islands, 8,600,000 square miles.

Form.—The general or *normal* shape is shown by lines connecting C. Race, Tehuantepec, C. St. Lucas, and C. Prince of Wales.

§ 97. Boundaries.—*North*, the Arctic Ocean; *East*, the Atlantic Ocean; *South*, the Isthmus of Panama; *West*, the Pacific Ocean.

SEAS, GULFS, STRAITS, AND ISLANDS.

§ 98. The Arctic Ocean forms—1. Baffins Bay, between Greenland and the North American Archipelago. 2. The Gulf of Boothia, between the peninsulas of Boothia and Melville. 3. Melville Sound, communicating with M'Clintock Channel and Banks Strait; and numerous smaller inlets.

§ 99. The Atlantic Ocean forms—1. Hudson Bay, W. of Labrador, having at its Southern extremity James Bay, and at its Northern, Fox Channel. 2. The Gulf of St. Lawrence, between the mouth of the St. Lawrence and Newfoundland. 3. The Bay of Fundy, between New Brunswick and Nova Scotia. 4. The Gulf of Mexico, between the United States and Mexico. 5. The Carib-

bean Sea, S. of the Gulf of Mexico and of the West India Islands; containing the Bay of Honduras.

§ 100. THE PACIFIC OCEAN forms—1. The Gulf of Tehuantepec, S. W. of Mexico. 2. The Gulf of California, between the peninsula of California and Mexico. 3. Bristol Bay, N. of the peninsula of Aliaska. 4. Norton Sound, in Behring Strait.

§ 101. STRAITS.

Banks Strait, between the Arctic Ocean and Melville Sound; Barrow Strait, communicating through Lancaster Sound with Baffins Bay; Davis Strait, connecting Baffins Bay with the Atlantic; Hudson Strait, communicating with Hudson Bay; Strait of Belle Isle, between Labrador and Newfoundland; Strait of Florida, at the entrance of the Gulf of Mexico; Strait of Juan de Fuca, between the United States and Vancouver Island; Behring Strait, between America and Asia.

§ 102. ISLANDS.

1. *In the Arctic Ocean.*—Greenland, a huge mass of rocks and glaciers, more than 1,200 miles long by 600 broad, belonging to Denmark; and the Arctic Archipelago, a large number of icy and desolate islands, among which are N. Devon, Prince of Wales Land, Prince Albert Land, Victoria Land, Melville Island, Pr. Patrick I., and Banks Land, all nominally belonging to England.

2. *In the Atlantic Ocean.*—The I. of Southampton, N. of Hudson Bay; the large I. of Newfoundland, E. of the G. of St. Lawrence; and the neighbouring Is. of Cape Breton, Prince Edward, and Anticosti, all belonging to England; the Bermudas, a group of Islands in the Atlantic, 600 miles E. of C. Hatteras, also belonging to England; and the West Indian Archipelago, consisting of three principal groups, the Bahama Is. belonging to England, and the Greater and Lesser Antilles, of which the chief are Hayti, an independent State; Cuba and Porto Rico, belonging to Spain; Martinique and Guadaloupe to France; Jamaica, Trinidad, Tobago, St. Vincent, Barbadoes, Antigua and others to England.

3. *In the Pacific Ocean.*—The Revillagigedo Is., off the coast

of Mexico; Vancouver, Queen Charlotte, and Prince of Wales Is., W. of British Columbia; Kodiak I., S. of Russian America; and St. Lawrence I. in Behring Strait.

COAST LINE, CAPES, PENINSULAS, AND ISTHMUSES.

§ 103. THE COAST LINE is estimated at 24,500 miles.

§ 104. CAPES.

On the Arctic Ocean.—C. Lisburn, Icy Cape, Barrow Pt. and C. Bathurst. *On the Atlantic.*—C. Farewell, S. of Greenland; C. Chidley N., and C. Charles S. of Labrador; C. Race, S.E. of Newfoundland; C. Sable, S. of Nova Scotia; C. Cod and Cape Hatteras, E. of the United States; C. Sable, S. of Florida; C. Catoche, N.E. of Yucatan; C. Gracios à Dios, between the Bays of Honduras and Mosquito. *On the Pacific.*—C. Corrientes, W. of Mexico; C. St. Lucas, the Southern point of California; C. Mendocino, and C. Blanco W. of the United States; C. Prince of Wales, in Behring Strait.

§ 105. PENINSULAS.

Boothia and Melville, between the Arctic Ocean and Hudson Bay; Labrador, between Hudson Bay and the G. of St. Lawrence; Nova Scotia, S. of the G. of St. Lawrence; Florida, between the G. of Mexico and the Atlantic; Yucatan, between the G. of Mexico and the Caribbean Sea; California, between the G. of California and the Pacific; Aliaska, between the Pacific and Behring Sea.

§ 106. ISTHMUSES.

The Isthmus of Chignecto, connecting Nova Scotia with the continent; Isthmus of Tehuantepec, separating the G. of Mexico from the Pacific; Isthmus of Panama, connecting Central and South America. The remaining Isthmuses have no distinctive names.

SURFACE OF THE LAND.

§ 107. PHYSICAL DIVISIONS.—The principal mountain system of North America extends along its Western side, from Behring Strait to the Isthmus of Panama; and is

thence prolonged through South America to the Strait of Magellan. It consists of two, and in some places of three parallel chains. 1. The principal one, containing the Rocky Mountains, stretching from the Arctic Ocean to the Sierra Verde, the source of the Colorado, and culminating in Mount Brown, in British Columbia, 15,900 feet in height. 2. The Cordilleras, commencing at the Sierra Verde, and continued to the Isthmus of Panama, culminating in Popocatepetl in Mexico, 17,720 feet. Between these and the coast of the Pacific an irregular and interrupted series of mountain chains and plateaux extends under various names—as, the Sea Alps in the North, containing Mount Elias, the culminating point of N. America, 17,850 feet in height; the Cascade range, the Coast range, and the Sierra Nevada, enclosing between them the gold region, and the latter prolonged through the peninsula of California. Between the Sierra Nevada and the Rocky Mts. lies the basin of Utah. A low chain is detached from the Rocky Mountains, between the Athabasca and Saskatchawan rivers, which runs northward to the Arctic Ocean; and another between the Saskatchawan and the Missouri, which sends one branch N.E. into Labrador, and a second S.E. towards the River St. Lawrence. The Alleghany Mts. extend in a South-western direction from the mouth of the St. Lawrence to the Alabama River. They consist of several parallel chains, from 3,000 to 4,000 feet in average elevation; Mt. Washington, the highest, being 6,652 feet. Volcanoes are found throughout the coast of the Pacific, and are numerous in Mexico and Central America. Mt. St. Elias and Mt. Fairweather in the North, Mt. St. Helen in the Cascade range, and Popocatepetl and Jorullo in Mexico, are among the most remarkable.

§ 108. SLOPES.

North America forms:—1. A slope to the Arctic Ocean. 2. A slope to the Pacific Ocean. 3. A slope to the Atlantic Ocean, and the seas connected with it. 4. The Continental Basin of Utah.

§ 109. THE SLOPE TO THE ARCTIC OCEAN is formed by the Eastern side of the Rocky Mountains, from Behring Strait to the source of the Athabasca R., and by the Northern and Western sides of the low chain detached from them at this point, and extending along the Western shores of Hudson Bay to the peninsula of Boothia.

It is a frozen and inhospitable region, almost destitute, through great part of its extent, of animal life, and of the means of supporting it. The natives are Esquimaux, who gain a miserable subsistence by fishing, and in its Southern part a few forts have been erected by the Hudson Bay Company.

COAST AND ISLANDS.—The coast is deeply cloven, and girdled by an archipelago of icy and uninhabited islands, separated from each other by a labyrinth of channels, frozen during the greater part, sometimes during the whole, of the year.

RIVERS.—1. THE MACKENZIE, formed by two streams, the *Peace River* and the *Athabasca*, both rising in the Rocky Mts., and the latter receiving the waters of the Lesser Slave L. and of L. Athabasca. The Mackenzie passes through the Great Slave L., communicates with the Great Bear L., and falls into the Arctic Ocean.

2. THE COPPER MINE RIVER traverses several lakes, and falls into Coronation Gulf.

3. THE GREAT FISH RIVER passes through many lakes, and ends South of Boothia.

§ 110. THE SLOPE TO THE PACIFIC OCEAN is formed by the Western side of the Rocky Mts. and Cordilleras, and extends from Behring Strait to the Isthmus of Panama.

The Northern part of this slope is cold, barren, and mountainous, belonging to Russia, which carries on a commerce in furs by means

of settlements on the coast. British Columbia in the centre possesses a temperate climate, abundance of wood and water, excellent coal, and a newly discovered gold-field. California, further South, has long been famous for its treasures of gold and quicksilver; and Mexico, extending into the Isthmus of Panama, is a rich and beautiful country, enjoying a tropical climate and vegetation, and abounding in mines of all the precious and useful metals.

Coast.—Regular and little indented, having only one inlet of importance, the Gulf of California.

Islands.—Kodiak I., S. of Aliaska Strait; Queen Charlotte and Vancouver Is., belonging to British Columbia, and some small groups on the coasts of California and Mexico.

Rivers.—1. The Yukon rises in the Rocky Mts., flows through the Russian territory, and ends in Behring Strait.

2. The Frazer, 600 miles in length, rises in the Rocky Mts., receives the *Thompson*, and falls in to the Gulf of Georgia.

3. The Columbia or Oregon rises in the Rocky Mts., receives the *Clarke and Lewis*, and enters the Pacific after a course of 750 miles.

4. The Sacramento waters the northern part of the gold valley of California, between the Sierra Nevada and the Coast range, and ends in the Bay of San Francisco.

5. The Colorado rises in the Cordilleras, traverses the sterile plains S. of the Great Salt Lake Basin, receives the *Gila* forming the boundary between the United States and Mexico, and falls into the Gulf of California.

6. The Rio de Santiago rises in the Mexican plateau, receives the waters of L. Chapala, and falls into the Pacific below St. Blas.

§ 111. The Slope to the Atlantic Ocean, and the Seas connected with it, is formed by the Eastern side of the low watershed extending between Hudson Bay and the Rocky Mts., and thence by the Eastern side of the Rocky Mts. and Cordilleras to the Isthmus of Panama. It contains:—1. A slope to Hudson Bay. 2. The basin of the St. Lawrence. 3. The slope of the Alleghany Mts. 4. A slope to the Gulf of Mexico. 5. A slope to the Caribbean Sea.

The interior of this slope between the Rocky Mts. and the

Alleghanies is a great plain or table-land, 2,000,000 square miles in extent, and of varying elevation and character. Its eastern border towards Hudson Bay and the Alleghany Mts. is undulating and wooded; its western, at the foot of the Rocky Mts., a stony desert; the centre is occupied by wide grassy regions, called *Prairies* or *Savannahs*. These prairies are sometimes moist and swampy, sometimes sprinkled over with heath and shrubs, but more frequently the soil is dry, covered only with long grass and flowers, and haunted by vast herds of deer, buffaloes, and other wild animals.

COAST.—Broken by large oceanic inlets, and by many smaller openings so as to present an exceedingly irregular outline, and a very extensive maritime frontier.

ISLANDS.—Numerous and important. Southampton I. in Hudson Bay, Newfoundland and the adjacent Islands at the entrance of the G. of St. Lawrence, and the Bermuda Islands in the Atlantic Ocean, all belonging to England; and the extensive chain of the West Indian Archipelago, between N. and S. America, covering an area of about 95,000 square miles, and belonging almost entirely to European nations. These Islands, lying principally within the torrid zone, are rich in all tropical produce. Sugar, coffee, cotton, and spice, are the chief exports; banana and cocoa-nut trees, and a variety of delicious fruits abound; mahogany and other timber grows in large quantities, and gold and silver are found in Cuba.

I. THE SLOPE TO HUDSON BAY is a cold and sterile region, subject to England, inhabited by Indians and Esquimaux, and by a few fur traders belonging to the Hudson Bay Company. Its principal rivers are:—

1. THE CHURCHILL, communicating through several lakes with Lake Athabaska, owing to the trifling elevation of the watershed.

2. THE NELSON, issuing from Lake Winnipeg, and appearing to be a prolongation of the Saskatchawan River.

3. THE SEVERN, issuing also from Lake Winnipeg.

4. THE ALBANY, traversing various lakes, and falling into James Bay.

II. THE BASIN OF THE ST. LAWRENCE is formed by the western side of the Alleghany Mountains, the northern boundary of the basin of the Mississippi, and the southern boundary of the slope to Hudson Bay. It drains the eastern portion of the great plain.

THE ST. LAWRENCE has its source in the little river St. Louis,

flowing into Lake Superior, through which communication exists with Lake Michigan, Lake Huron, Lake Erie, and Lake Ontario. After emerging from Lake Ontario, the St. Lawrence takes its name, receives the *Ottawa* and other affluents, washes Montreal and Quebec, and falls into the G. of St. Lawrence. The course of the St. Lawrence from L. Ontario to its mouth is 700 miles; its entire length, from the source of the St. Louis, nearly 2,000 miles.

Between Lake Erie and Lake Ontario are the stupendous falls of Niagara, 162 feet in height.

III. THE SLOPE OF THE ALLEGHANY MOUNTAINS is narrow in the North, and widens towards the South. It is diversified by mountains, hills, and plains, and furrowed by numerous rivers The coast is bordered by lagunes, bays, and islands. Rivers:—

1. THE CONNECTICUT, 400 miles in length, falling into the Sound.

2. THE HUDSON, 330 miles in length, rising in the heights surrounding L. Champlain, and falling into the sea at New York.

3. THE DELAWARE, 300 miles, ending in Delaware Bay.

4. THE SUSQUEHANNA, 450 miles, formed by two streams descending from the Alleghany Mts., and falling into Chesapeake Bay.

5. THE POTOMAC, 400 miles, rising in the Alleghany Mts., washing Washington and Mount Vernon, and ending in Chesapeake Bay.

6. THE JAMES, 450 miles, washing Richmond, and falling into Chesapeake Bay.

7. THE ROANOKE, ending in Albemarle Bay.

8. THE CONGAREE OR SANTEE, 350 miles, ending near Charleston.

9. THE SAVANNAH, 400 miles, falling into the Atlantic at Savannah.

10. THE ALATAMAHA, 400 miles, formed by two rivers, and washing Milledgeville.

IV. THE SLOPE TO THE GULF OF MEXICO is formed by the southern and western side of the Alleghany Mountains, the southern boundary of the basin of the St. Lawrence, and the eastern declivity of the Rocky Mountains and Cordilleras. The coast is low, marshy, and intersected by salt-water lagunes. Rivers:—

1. THE APPALACHICOLA, formed by two streams, the *Chattahookee* and the *Flint*, and falling into Appalachee Bay.

2. THE MOBILE, formed by two rivers, the *Alabama* and *Tombigby*, and ending in the Bay of Mobile.

3. THE MISSISSIPPI, the largest river of N. America, rising in

the plateau from which the Winnipeg flows N., and the St. Lawrence E. It waters the southern half of the Great Plain, and falls into the G. of Mexico below New Orleans, after a course of 2,400 miles, or 4,000 miles from the source of the Missouri. Affluents:—

1. *The Missouri*, rising in the Rocky Mts., receiving the *Yellow Stone, Platte, and Kansas*, and flowing 2,500 miles before its junction with the Mississippi near St. Louis.

2. *The Arkansas*, rising in the Sierra Verde, and ending at Arkansas.

3. *The Illinois*, rising South of Lake Michigan, and ending nearly opposite the Missouri.

4. *The Ohio*, formed by the *Alleghany* and *Monongahela*, descending from the Alleghany Mts. It receives the *Scioto* and *Tennessee*, and has a course of 950 miles before falling into the Mississippi.

4. THE RIO GRANDE DEL NORTE, 1,400 miles in length, rising in the Sierra Verde, and separating Mexico from the United States. It receives the *Conchos* and *Sabinos*, and falls into the G. of Mexico.

V. THE SLOPE TO THE CARIBBEAN SEA is hot, insalubrious, and marshy. It is watered by several streams, of which the principal is the *San Juan*, issuing from Lake Nicaragua and ending in Mosquito Bay.

§ 112. THE CONTINENTAL BASIN OF UTAH.

Surrounded on every side by mountains. The interior consists of elevated plains 4,000 to 5,000 feet in height, many of them covered with incrustations of salt. It has few rivers, but abounds in salt lakes. Those of Utah and the Great Salt Lake are the best known.

§ 113. LAKES.

L. Superior, 32,000 square miles; L. Michigan, 24,000 square miles; L. Huron, 20,000 square miles; L. Erie, 9,600 square miles; L. Ontario, 6,300 square miles; L. Winnipeg, 9,000 square miles; Great Slave Lake, 12,000 square miles; Great Bear Lake, 10,000 square miles; L. Athabasca, 3,000 square miles; L. of the Woods, 1,500 square miles; Deer Lake, 2,400 square miles; Wollaston Lake, 1,900 square miles; all in British North America. Great Salt Lake, 1,800 square miles; and L. Utah, 150 square miles, in the United States. L. Chapala, 1,000 square miles, in Central America; L. Nicaragua, 3,500 square miles. in Mexico.

SOUTH AMERICA.

§ 114. POSITION.—South America is situated between the 12th parallel of North and the 56th of South lat.; and between the 35th and 82nd meridians of West long.

Extreme Points.—North, C. Gallinas 12° 25′ N. lat.; South, C. Froward 53° 54′ S. lat.; East, C. Branco 35° W. long.; West, C. Parina 81° 18′ West long.

Dimensions.—*Greatest length* from North to South, 4,500 miles. *Greatest breadth* from East to West, 3,000 miles. Area, not including islands, 6,356,000 square miles.

Form.—The general or *normal* shape is shown by lines connecting C. St. Roque, C. Horn, C. Parina, and C. Gallinas.

§ 115. BOUNDARIES.—*North*, the Isthmus of Panama and the Caribbean Sea; *East*, the Atlantic Ocean; *West*, the Pacific Ocean.

SEAS, GULFS, STRAITS, AND ISLANDS.

§ 116. THE CARIBBEAN SEA forms:—1. The Gulf of Darien in New Granada. 2. The Gulf of Maracaybo in Venezuela.

§ 117. THE ATLANTIC OCEAN forms:—1. The Gulf of Paria between Venezuela and the I. of Trinidad. 2. The Bay of Todos os Santos, S. of St. Salvador. 3. The G. of St. Matthias, E. of Patagonia. 4. The G. of St. George, S. of the G. of St. Matthias.

§ 118. THE PACIFIC OCEAN forms:—1. The Gulf of Guayaquil, E. of Ecuador. 2. The Gulf of Panama, N.E. of New Granada.

§ 119. STRAITS.

Strait of Magellan, between Patagonia and Tierra del Fuego; Strait of Le Maire, between Tierra del Fuego and Staten I.

§ 120. ISLANDS.

1. *In the Caribbean Sea.*—The Venezuelan Archipelago, including Margarita, Tortuga, Curaçoa, and other Islands.

2. *In the Atlantic Ocean.*—The I. of Joannes or Marajo, at the mouth of the Amazon; the Falkland Is. and S. Georgia, S.E. of Patagonia, belonging to England; Staten I., S. of Le Maire Strait; and Sandwich I., the S. Orkneys, and other Islands near the Antarctic circle.

3. *In the Atlantic and Pacific Oceans.*—The Archipelago of Magellan, or the Is. of Tierra del Fuego, the most southern inhabited land on the globe.

4. *In the Pacific Ocean.*—The Archipelago of Madre de Dios, S.W. of Patagonia; I. Chiloe and the Chonos Archipelago, N.W. of Patagonia; Juan Fernandez, Masafuera, and Felix Is., W. of Chili; the Chinca Is., W. of Peru; and the Galapagos Is., W. of Ecuador.

COAST LINE, CAPES, PENINSULAS, AND ISTHMUSES.

§ 121. The Coast Line is estimated at 13,600 miles.

§ 122. CAPES.

C. Gallinas, N. of New Granada, the northernmost point of S. America; C. St. Roque, C. Branco, C. Thome, and C. Frio, E. of Brazil; C. Froward, S. of Patagonia, the southernmost point of S. America; C. Horn, S. of the I. of Tierra del Fuego; C. Parina and C. Aguja, N. W. of Peru; C. San Lorenzo, and C. Galera, W. of Ecuador.

§ 123. PENINSULAS.

Tres Montes, S.E., and St. Joseph, S. W. of Patagonia.

§ 124. ISTHMUS.

The Isthmus of Panama, connecting South and Central America.

SURFACE OF THE LAND.

§ 125. PHYSICAL DIVISIONS.—That part of the great mountain system of the new world which extends along the Western side of South America is called the Andes, and is subdivided according to the countries through which it passes into the Columbian, Peruvian, Bolivian,

Chilian, and Patagonian Andes. The Columbian Andes consist in their northern part of three parallel chains, from the easternmost of which a branch is detached along the shores of the Caribbean Sea; near the equator they form two chains with lateral branches, the eastern containing the peaks of Cayambé, 19,535 feet in height; Antisana, 19,137 feet; and Cotopaxi, 18,775 feet; the western, Chimborazo, 21,424 feet, and Illinissa, 17,380 feet. The Peruvian and Bolivian Andes form two chains, containing some of the loftiest summits in S. America; the eastern, the Nevados of Sorata, 21,286 feet, and Illimanni, 21,140 feet; the western, Sahama Peak, 22,350 feet, and Arequipa, 20,320 feet. The Chilian and Patagonian Andes consist of a single chain, of lower average elevation than the Bolivian, but still very lofty; and the Chilian containing Mt. Aconcagua, 23,910 feet, the culminating point of S. America.

Besides the Andes, S. America contains two other mountain systems, those of Brazil and Guiana. The Mts. of Brazil consist of numerous ranges, occupying a triangular space, from the mouth of the Rio de la Plata, S., to within three degrees of the equator, N. They form, in the centre of Brazil, a plateau of from 2,000 to 2,500 feet in height. Itambe, the culminating point of the system, is 5,960 feet high. The Mts. of Guiana are situated between the equator and the 7th degree of N. lat., and run in a general direction from East to West. The western portion is called the Sierra Parima; the eastern, the Sierra Acaray. Mt. Maravaca, 11,000 feet in height, is the culminating point.

A greater number of volcanoes is found in the Andes than in any other mountain system. In the Chilian chain, nineteen are active; they abound in the southern

part of the Columbian chain, and occur also in the Patagonian, and in Tierra del Fuego. Cotopaxi, Tolima, Antisana, Pichincha, Arequipo, and Chillan, are among the most remarkable.

§ 126. Slopes.

South America forms:—1. A slope to the Caribbean Sea. 2. A slope to the Pacific Ocean. 3. A slope to the Atlantic Ocean. 4. The small continental basin of L. Titicaca.

§ 127. The Slope to the Caribbean Sea is formed by the three chains of the Columbian Andes, and the branch detached from the eastern one towards the G. of Paria. It is a mountainous country, containing a few elevated and fertile plains.

Coast.—High and rocky, and cloven by several inlets, of which the G. of Maracaybo is the largest.

Islands.—The Venezuelan Archipelago.

Rivers.—1. The Magdalena descends from the Columbian Andes, receives the *Bogota* and the *Cauca*, and ends E. of Cartagena, after a northerly course of 800 miles.

2. The Atrato or Darien rises in the Columbian Andes, and falls into the G. of Darien.

§ 128. The Slope to the Pacific Ocean is bounded by the western side of the Andes. It is long, narrow, and steep, the mountains running parallel with the coast, and so near to it as to afford space only for short and rapid streams.

The plain formed between the foot of the Andes and the sea is in its northern part rich, well watered, and very hot. In the mountains, at a height of 10,000 feet, is situated the plateau of Quito, enjoying a delicious climate and magnificent scenery, and containing the town of Quito, the capital of the republic of Ecuador. Peru varies from ten to sixty miles in breadth. It is crossed by numerous short rivers, and is fertile and beautiful, but subject to great heat, and frequent earthquakes. S. of it lies the desert of

Atacama, an almost uninhabited region, destitute of water and vegetation. Chili is a picturesque, fine and healthy country, consisting of a very narrow maritime plain, from which rise slopes clothed with vineyards, pastures, and forests, and backed by the grand volcanic peaks of the Andes. S. of Chili the mountains ascend immediately from the sea coast.

Coast and Islands.—The western coast of S. America is in its northern and central parts little indented, the gulfs of Panama and Guayaquil being the chief inlets. The southern portion is more remarkable, being mountainous, bordered by granite rocks, broken by numerous fiords, and girdled by an uninterrupted chain of islands, from the Archipelago of Chiloe to that of Tierra del Fuego.

§ 129. The Slope to the Atlantic Ocean is formed by the southern side of the mountains of Guiana, and the eastern side of the Andes chain. It comprises:—1. The slope of Guiana. 2. The basin of the Amazon. 3. The northern slope of Brazil. 4. The basin of the San Francisco. 5. The slope of the Coast Chain, or Sierra do Mar. 6. The basin of the La Plata. 7. The slope of Patagonia.

A great plain extends from N. to S. through the interior of South America as in the northern division of the continent, which may be sub-divided into three principal portions, the *Llanos or Savannahs* of the Orinoco, the *Silvas* of the Amazon, and the *Pampas* of the La Plata and Buenos Ayres. *The Llanos* occupy a space of 150,000 square miles, nearly the entire basin of the Orinoco. They are flat plains,—alternately inundated during the wet season, when the tropical rains cause the rivers to overflow, after which they are covered with rich grass, forming vast open pastures,—and burnt up during the dry season, when the grass withers, and a spark of fire accidentally dropped upon it, often kindles a devastating conflagration of many miles. *The Silvas* extend over nearly 1,500 miles in length by from 300 to 800 in breadth, in the centre of the continent, and consist chiefly of thick and tangled forests, matted with under-growth and climbing plants, and alive with innumerable birds, beasts, and reptiles. *The Pampas* consist partly of extensive swamps filled with aquatic plants, and partly of vast tracts

covered in some places with lucern and tall thistles, and in others with long tufted grass. They stretch to the foot of the Andes.

COASTS.—That of Guiana, low, swampy, and wooded; the northern coast of Brazil, rocky and cloven by the embouchures of numerous rivers; the southern, mountainous, but fertile and populous; that of La Plata and Patagonia, wild, desolate, and little visited.

I. THE SLOPE OF GUIANA AND THE BASIN OF THE ORINOCO is formed by the northern side of the Sierra Parima and Sierra Acaray, and extends from the I. of Trinidad to the northern boundary of the basin of the Amazon. It comprises English, French, and Dutch Guiana, and part of Venezuela. Rivers:—

1. THE ORINOCO, 1200 miles long, rises in the Mts. of Guiana, communicates by the Casaquiari with the Rio Negro, receives the *Guaviare*, *Ventuari*, *Meta*, and *Apure*, and falls into the Atlantic S. of the Caribbean Sea.

2. THE ESSEQUIBO rises in the Sierra Acaray, and flows N. through British Guiana.

3. THE BERBICE ends at New Amsterdam.

4. THE CORENTYN forms a boundary between English and Dutch Guiana.

5. THE SURINAM ends at Paramaribo.

6. THE MARQUI flows between Dutch and French Guiana.

II. THE BASIN OF THE AMAZON is surrounded on the North by the mountains of Guiana, on the West by the Andes, and on the South by the Mts. of Brazil; and occupies nearly 2,500,000 square miles. *The Amazon*, the largest river in the world, descends from the Andes, and is formed by the confluence of the *Maranon*, rising in L. Lauricocha, with the Apurimac or Ucayali, rising N. W. of L. Titicaca. It receives a great number of tributaries, of which the chief are, *the Napo*, the *Caqueta or Japura, and the Negro*, on the left; *the Javari, Jutay, Jurua, Purus, Madera, Tapajos, Xingu*, and *Tocantins*, on the right. The course of the Amazon is little less than 3,900 miles. About 100 miles from its mouth, it sends out a branch called the Taygpura channel, which encircles the I. of Marajo, and enters the ocean as the Rio Para.

III. THE NORTHERN SLOPE OF BRAZIL lies between the southern boundary of the basin of the Amazon and the northern boundary of the basin of the River San Francisco. Chief river,

THE PARANAHIBA, rising in the Mts. of Brazil and entering the Atlantic at the town of Paranahiba.

IV. THE BASIN OF THE SAN FRANCISCO is long and narrow, extending from S.W. to N.E. between the Coast Chain, and the easternmost branch of the central Mts. of Brazil.

THE SAN FRANCISCO, 1500 miles in length, descends from the Sierra of Villa Rica, and terminates at Sergipe.

V. THE SLOPE OF THE COAST CHAIN OR SIERRA DO MAR is a narrow tract enclosed between these mountains and the Atlantic. Chief river,

THE PARAHYBA, ending N. of C. Thome.

VI. THE BASIN OF THE LA PLATA lies between the southern limit of the basin of the Amazon, the eastern side of the Chilian Andes, and the northern boundary of the basin of the Negro.

THE RIO DE LA PLATA is formed by the junction of two large rivers—*the Parana*, the principal source, descending from the Sierra do Mar; and *the Paraguay* rising in the Campos Parexis. The united stream receives *the Saldado* and the *Uruquay*. The distance from the source of the Parana to the mouth of the La Plata is 2,350 miles; from the confluence of the two rivers, 760 miles.

VII. THE SLOPE OF PATAGONIA is formed by the southern boundary of the basin of the La Plata, and the eastern side of the Patagonian Andes. Rivers:—

1. THE COBO LENBU OR COLORADO rises in the Andes and falls into the Atlantic N. of Anegada Bay.

2. THE CUSU LENBU OR NEGRO, formed by two streams, has a course of 800 miles, and ends in the G. of St. Matthias.

THE CONTINENTAL BASIN OF L. TITICACA is surrounded on all sides by the lofty summits of the Peruvian and Bolivian Andes. The plateau of Titicaca is situated at an elevation of 12,800 feet above the sea, and is about 500 miles in length by 130 broad. The Lake receives several small streams, and communicates by the *Desaguadero*, a river 190 miles in length, with L. Aullagas.

§ 130. LAKES.

L. Titicaca, 3,800 square miles, situated in the plateau of Titicaca in the Andes, 12,847 feet above the sea, and connected by the river Desaguadero with *L. Aullagas*; *L. Maracaybo*, 5,000 square miles, near the Caribbean Sea; *L. dos Patos*, 5,000 square miles, on the coast of Brazil, communicating with *L. Merun*.

OCEANIA.

§ 131. Position.—Oceania comprehends the Islands and Archipelagoes in the Pacific Ocean, lying between the 28th parallel of North and the 56th of South lat.; and between the 95th meridian of East, and the 110th of West long. It forms four principal sections, Australasia, Malaysia, Micronesia, and Polynesia.

Extreme Points.—North, the Bonin Is. 27° 44′ N. lat.; South, the Macquarie Is. 56° S. lat.; East, Sumatra 95° E. long.; West, Easter I. 109° 17′ W. long.

Dimensions.—*Greatest length* from the westernmost point of Sumatra to Easter I., upwards of 10,000 miles. *Greatest breadth* from the Bonin Is. to the Macquarie Is., about 5,000 miles. *Area*, probably not less than 4,500,000 miles.

AUSTRALASIA.

§ 132. Australasia comprises the Continent of Australia, Tasmania or Van Diemen's Land separated from it by Bass's Strait, and the belt of Islands lying North-east and South of it. Of these, the principal are Papua or New Guinea, New Britain, New Ireland, the Louisiade Archipelago, the Solomon Is., the New Hebrides, New Caledonia, Norfolk I., New Zealand, the Chatham Is., and the Auckland Is.

Australia.

§ 133. Position.—Australia is situated between the 11th and 39th parallels of S. lat., and between the 113th and 154th meridians of E. long.

Extreme Points.—North, C. York 10° 42′ S. lat.; South, Cape Wilson 39° 9′ S. lat; West, Steep Point 113° E. long.; East, Cape Byron 153° 47′ E. long.

Dimensions.—*Greatest length* from E. to W., 2,400 miles. *Greatest breadth* from N. to S., 2,000 miles. *Area*, 3,000,000 square miles.

§ 134. BOUNDARIES.—North, West, and South, the Indian Ocean; East, the Pacific Ocean.

GULFS, STRAITS, AND ISLANDS.

§ 135. The INDIAN OCEAN forms, on the North, 1. The Gulf of Carpentaria, the largest inlet on the Australian coast; 2. The Gulf of Van Diemen; 3. Cambridge Gulf. On the West—Shark Bay. On the South—1. Spencer's Gulf; 2. St. Vincent's Gulf; 3. Encounter Bay.

§ 136. THE PACIFIC OCEAN forms only small inlets on the coast of Australia; the chief are:—1. Botany Bay. 2. Moreton Bay. 3. Hervey Bay. 4. Edgecumbe Bay.

§ 137. STRAITS.

Torres Strait on the North, between Australia and Papua; Bass's Strait on the South, between Australia and Tasmania.

§ 138. ISLANDS.

On the North—Bathurst I., Melville I., and in the Gulf of Carpentaria Groote I., Wellesley I., and the Pellew Is. *On the East*—Great Sandy I. *On the South*—Tasmania, Furneaux Is., King's I., Hunter's Is, and Kangaroo I. *On the West*—Dirk Hartog I.

COAST LINE, CAPES, AND PENINSULAS.

§ 139. THE COAST LINE is estimated at 8,700 miles.

§ 140. CAPES.

North.—C. York, C. Arnhem, Pt. Dale, and C. Van Diemen. *West.*—C. Londonderry, C. Leveque, North-West C., Steep Pt., and C. Leeuwin. *South.*—C. Catastrophe, C. Spencer, C. Otway, and C. Wilson. *East.*—C. Howe, C. Byron, and C. Flattery.

§ 141. PENINSULAS.

Cape York peninsula, E. of the Gulf of Carpentaria; Coburg, E. of the Gulf of Van Diemen; and Yorke, on the southern coast, between the Gulfs of Spencer and St. Vincent.

SURFACE OF THE LAND.

§ 142. PHYSICAL DIVISIONS.—The mountains of Australia are of moderate elevation, and appear to be confined

to the vicinity of the coasts, the interior of the country spreading out into low plains. The principal chain at present known extends along the entire Eastern side, is continued beneath Bass's Strait, its course marked by a line of rocky islands, and re-appears in Tasmania. In the Northern part of its course it is low, but in the Liverpool Range, N. of Sydney, it rises to a height of from 2,000 to 4,000 feet; and in the Blue Mts., S. of the Liverpool Mts., to an average elevation of from 2,000 to 3,000 feet; whilst the Australian Alps, the Southern extremity of the chain, are the highest mountains of the Continent; their loftiest summit, Mt. Kosciusco, being 6,500 feet above the sea, and covered, as are some other peaks, with perpetual snow. From the Australian Alps a chain is detached westward through the colony of Victoria, under the names of the Australian Pyrenees and Grampians. From the Eastern shores of the Gulf of St. Vincent, the Flinders Range extends northward, attaining a height of from 2,000 to 3,000 feet, and beyond it other chains of inferior elevation run in a similar direction. The Western coast is backed by mountains of a lower general height than those of the Eastern; the most considerable, Darling Range in the S.W., rising from 2,000 to 3,000 feet.

Australia possesses a fine climate, luxuriant vegetation, and vast mineral wealth. The palm grows in the north, and cotton on the eastern coast. The native trees are all evergreen, but European fruits and plants are easily naturalized; and the extensive pasture lands now feed innumerable herds and flocks introduced by the colonists. Gold has been found in immense quantities in the south-east, the richest gold-fields being those in the Valley of the Macquarie River. Copper, lead, iron and coal also abound. Australia has been colonized by Great Britain, and with Tasmania, and the adjacent islands, forms part of the British Empire.

§ 143. SLOPES.

Australia is at present imperfectly known. The Eastern side, portions of the South and West, and a small part of the North, are occupied by English colonies, and recent expeditions have penetrated from various points far into the interior, discovering large tracts of well-watered land, grassy meadows and forests, and a central desert, destitute of trees and water; but much remains to be explored before its hydrographical system can be accurately determined.

§ 144. THE SLOPE TO THE PACIFIC OCEAN is watered by numerous rivers, deep and rapid during winter, but in summer dried up, or existing only as a string of ponds or *water holes*. The chief are:—

1. THE BRISBANE, flowing into Moreton Bay.
2. THE RICHMOND, ending S. of C. Byron.
3. THE CLARENCE, falling into Shoal Bay.
4. THE HUNTER, 200 miles in length, ending at Port Hunter.
5. THE HAWKESBURY, falling into Broken Bay.
6. THE SHOALHAVEN, terminating in Shoalhaven Bay.

§ 145. THE SOUTHERN SLOPE TO THE INDIAN OCEAN contains the extensive basin of the Murray, the largest Australian river—draining an area of 200,000 square miles; and some other inconsiderable streams.

THE MURRAY rises in the Western slope of the Australian Alps, receives the *Murrumbidgee*, with its affluent the *Lachlan*; the *Goulburn*; and the *Darling*; and after a course of 1,200 miles passes through L. Victoria, and falls into Encounter Bay.

§ 146. THE WESTERN SLOPE TO THE INDIAN OCEAN contains numerous but unimportant streams. The principal is,

THE SWAN RIVER, 180 miles in length, ending below Perth.

§ 147. THE NORTHERN SLOPE TO THE INDIAN OCEAN.

1. THE VICTORIA River, ending in Cambridge Gulf.

2. The Adelaide, falling into Van Diemen Gulf.
3. The Roper, ending in the Gulf of Carpentaria.
4. The Mitchell, falling into the Gulf of Carpentaria.

§ 148. Some of the rivers descending from the Western side of the East coast ranges terminate in the deserts of the interior. Of these, the chief is the Macquarie, which rises on the western slope of the Blue Mts., flows 300 miles in a N.W. direction, and is lost in the plain.

§ 149. Lakes.

Australia contains few lakes, and these are generally full in the rainy season, but dry up or become marshes in summer. *L. Victoria* or *Alexandrina*, at the mouth of the river Murray, is an extensive *lagoon*, 273 square miles in area, connected with *L. Albert* and *L. Coorong*, and communicating by a narrow and dangerous channel with the sea. *L. Torrens*, N. of Spencer Gulf, is a large and shallow salt marsh of a horse-shoe form. A great salt-water lake was discovered in the interior by Mr. Stuart, in 1860.

Tasmania.

§ 150. Tasmania or Van Diemen's Land is an island S. of Australia, from which it is separated by Bass's Strait. It is 200 miles long by 160 broad, and has an area of 24,000 square miles, and a coast line of 720 miles.

The climate is temperate and healthy, and the vegetation vigorous. The trees, like those of Australia, are all evergreen, and many of them remarkable for strength and beauty. Iron and copper abound, and coal is found on the eastern side of the island.

GULFS, ISLANDS, CAPES, AND PENINSULAS.

§ 151. The principal inlets on the coast are, the Estuary of the Tasman N.; Oyster Bay E; Storm Bay S.E.; Port Davey S.W.; and Macquarie Harbour W.

§ 152. Islands.—Bruni I., S.E., separated from the mainland by D'Entrecasteaux Channel, and Maria I., N. of Tasman's Peninsula.

§ 153. Capes.—C. Grim, N.W.; C. Portland, N.E.; St. Patrick's Head, C. Lodi, and C. Pillar, E.; South C.; South West C.; C. Sorel, W.; and West Cape.

§ 154. PENINSULAS.—Tasman's Peninsula, E. of Storm Bay, of very singular conformation, united by an isthmus 120 yards wide to Forestier's Peninsula, which is connected by a narrow neck of land with the mainland. Freycinet's Peninsula, E. of Oyster Bay.

SURFACE OF THE LAND.

§ 155. The mountains of Tasmania, which appear to be a prolongation of the eastern Australian chain, extend from C. Portland, the N.E. extremity of the island, to South C. They have an average elevation of 3,500 feet, and their general course is S.W. Spurs are detached in various directions from the principal ridge; one on the N.E. culminates in Ben Lomond, 5,000 feet high; and another towards the S.E. terminates in Mt. Wellington, near Hobart Town, 4,200 feet.

§ 156. SLOPES. Tasmania forms:—1. A slope to the N.W. 2. A slope to the S.E.

§ 157. THE NORTH-WESTERN SLOPE. Rivers—

1. THE ARTHUR, falling into the Indian Ocean on the N.W.
2. THE TAMAR, formed by the N. and S. Esk rivers, and ending in a broad estuary in Bass's Strait.

§ 158. THE SOUTH-EASTERN SLOPE. Rivers—

1. THE DERWENT, issues from L. St. Clair in the centre of the island, receives several tributaries and falls into Storm Bay.
2. THE HUON, rises in L. Edgar, and ends in D'Entrecasteaux Channel.

§ 159. LAKES.—These are numerous and beautiful. The largest are *L. St. Clair*, the source of the Derwent, and *Great Lake*, the source of the Shannon.

New Zealand.

§ 160. *New Zealand*, in the Pacific Ocean, 1,200 miles S. E. of Australia, consists of two large islands and a smaller one, known respectively as the *North*, *Middle*, and *South* Islands. Their united length is upwards of

1,200 miles, and their average breadth 100 miles. The North I. has an area of about 54,000, the Middle I. of 44,000, and the South or *Stewart* I. of 900 square miles.

GULFS, STRAITS, CAPES, AND PENINSULAS.

§ 161. The principal inlets on the coast are the Bay of Islands, Gulf of Hauraki, Bay of Plenty, Hawkes' Bay, Port Nicholson, and Queen Charlotte's Sound in the North I., and Port Otago in the Middle I.

§ 162. STRAITS.—Cook's Strait, separating the two larger islands, and Foveaux Strait, separating the Middle from the South Island.

§ 163. CAPES.—North C., East C., C. Palliser, and C. Egmont, on the North I.; C. Farewell, and C. Campbell, in the Middle I.; and South C. on the Southern I.

§ 164. PENINSULAS.—Bank's Peninsula, E. of the Middle I.

SURFACE OF THE LAND.

§ 165. PHYSICAL DIVISIONS.—A central chain of mountains traverses the two larger islands in the direction of their greatest length, from which lateral spurs are detached. In the North I., several parallel chains are formed containing many lofty summits, among which are Mt. Egmont, 8,800 feet, and Tongariro, an active volcano, 6,200 feet. In the Middle I., a still greater elevation is attained, Mt. Kaikoras being upwards of 9,000 feet, and Mt. Cook the culminant point of New Zealand, 13,000 feet in height. All the loftier peaks are covered with perpetual snow. The climate is temperate and equable, somewhat resembling that of England; but moister and warmer in winter. Vegetation is rich and varied. Gold, copper, iron, and coal are found, and sulphur is obtained in the volcanic districts. New Zealand belongs to Great Britain.

§ 166. Slopes. A slope to the Western and a slope to the Eastern coasts.

I. The principal rivers draining the Western coast are:—*In the North Isle.*

1. The Waikato, 170 miles in length.
2. The Wanganui, falling into Cook's Strait.
3. The Manawatu, 140 miles in length, ending in Cook's Strait.
4. The Hutt, flowing southward into Cook's Strait.

In the Middle Isle.

1. The Buller, 90 miles in length.
2. The Grey.

II. The principal rivers draining the Eastern coast are:—*In the North Isle.*

1. The Wariapara, falling into the Bay of Plenty.
2. The Wai-ho or Thames, ending in the G. of Hauraki.

In the Middle Isle.

The Wairau, running N.E. into Cloudy Bay.

§ 167. Lakes.—*L. Taupo*, the source of the Waikato; *L. Roturoa*, N. of L. Taupo.

Papua or New Guinea, N. of Australia, is one of the largest islands in the world, being 1,300 miles long by from 200 to 300 broad. The coast is broken by deep bays, and the interior is mountainous; Mt. Stanley, the culminating point, rising upwards of 13,000 feet. It is visited by the Chinese and other eastern nations for purposes of commerce; and its western half belongs to the Dutch.

The Arroo Is., S.W. of New Guinea, also belong to the Dutch. Timor Laut, W. of the Arroo Is., forms the eastern extremity of the lesser Sunda Is.

New Britain, N.E. of New Guinea, consists of two large and mountainous islands, one of which contains an active volcano. New Ireland is a long and narrow island N. of the former.

The Louisiade Archipelago, S.E. of New Guinea, consists of about eighty islands.

The Solomon Is., E. of New Guinea, form a long chain, the principal islands being eight in number.

Queen Charlotte's Is. are a volcanic group between the Solomon Is., and the New Hebrides.

THE NEW HEBRIDES, S. of Queen Charlotte's Is., consist of twenty large and many smaller islands. They are of volcanic origin, and on Tanna there is an active volcano.

NEW CALEDONIA, S. of the New Hebrides, is a large island belonging to France.

NORFOLK I., 400 miles N.W. of New Zealand, a small island belonging to Great Britain, is used as a convict settlement.

THE CHATHAM IS. are a small cluster E. of New Zealand.

THE AUCKLAND IS. are a volcanic group S. of New Zealand, chiefly visited by vessels engaged in the whale fishery.

MALAYSIA.

§ 168. Malaysia, called also the Eastern or Indian Archipelago, comprises the numerous islands lying between the South-eastern coast of Asia and the North-western coast of Australia, and New Guinea, and between the Pacific and Indian Oceans. Its entire area is computed at about 853,000 square miles, and it includes six principal groups; the Sunda Is., Borneo, the Celebes, the Moluccas, the Sooloo Is., and the Philippine Is.

THE SUNDA IS. comprise Sumatra, Java, Madura, Sumbava, Sandalwood, Flores, Timor, and numerous smaller islands.

Sumatra, the largest and westernmost of the Sunda Is., is separated from the continent of Asia by the Strait of Malacca. It is 1,100 miles in length by 160 broad, and is traversed by a chain of mountains rising at the equator to 15,000 feet. It is rich in mineral and metallic wealth, and in timber, fruits and gums. The chief exports are gold dust, camphor, sulphur, and gutta percha. The Dutch are masters of the southern part of the Island, as well as of the small Island of Banca, S.E. of Sumatra, and celebrated for its tin mines.

JAVA, S.E. of Sumatra, and separated from it by the Strait of Sunda, is the centre of the Dutch power in the East. It is a mountainous island containing numerous volcanoes, extinct and active. The vegetation is splendid and varied. Coffee, cocoa, rice, sago, maize, cinnamon, indigo, cotton, and tobacco, are produced in abundance; and the celebrated poisonous tree, the *Upas*, grows

in the forests. Java is the most populous island of Malaysia, having 9,943,000 inhabitants, of whom 17,000 are Europeans.

Madura, Sumbava, Sandalwood, Flores, Timor, and other islands, prolong the Sunda chain eastward. They are partly independent, partly Dutch and Portuguese, and produce coffee, rice, cocoa-nut oil, cinnamon, and precious woods.

BORNEO, the largest island in the world, if Australia be regarded as a continent, is situated N. of Java, and has an area of nearly 300,000 square miles. It is divided by the equator into two nearly equal parts, is crossed by two ranges of mountains, the highest attaining an elevation of 13,600 feet, and has many navigable rivers. It possesses rich mines of diamonds, gold, antimony, copper, tin, iron, and platina, and abounds in all tropical plants and animals. The Dutch have factories on the South and East; and Great Britain holds Sarawak on the West, a province in the North, and the small I. of Labuan near the coast, on which excellent coal is found.

THE CELEBES IS. include the large island of Celebes, E. of Borneo, and some smaller islands. Celebes has an area of 73,000 square miles, and is of very singular conformation, consisting of four long, narrow and irregular peninsulas. Its highest mountain is 7,000 feet, and it has several volcanoes.

THE MOLUCCAS OR SPICE ISLANDS, between Celebes and New Guinea, comprise *Bouro, Amboyna, Ceram, Banda, Gilolo*, and other islands. Their chief productions are nutmegs, cloves, and other spices, and aromatic woods. They are claimed by the Dutch, who have a settlement at Amboyna. N.W. of Gilolo, in the Celebes Sea, are the Sangir Is.

THE SOOLOO ARCHIPELAGO, in the Celebes Sea, between Borneo and the Philippine Is., numbers more than sixty small islands; they are beautiful and productive, but are inhabited by Malay pirates.

THE PHILIPPINE IS., the northernmost portion of Malaysia, include more than a thousand islands and islets; Luzon, the principal, having an area of 57,500 square miles, an extent nearly equal to all the rest. They are generally volcanic, and have a luxuriant vegetation, producing fruit, rice, tobacco, and timber. They belong to Spain.

Micronesia.

§ 169. Micronesia comprehends the various clusters of islands in the Pacific Ocean, situated North of the Equator, and East of the Philippine Is. They are chiefly small, many of them mere specks upon the surface of the ocean; some mountainous and volcanic, others of coral formation, or surrounded by coral reefs. The principal groups are the Bonin Is., the Ladrones, the Caroline Is., and the Sandwich Is.

The Bonin Is., S.E. of Japan, consist of upwards of eighty small islets of volcanic origin. On the largest there is an English settlement of persons engaged in the whale fishery.

The Ladrone or Marianne Is., S. of the Bonin Is., also of volcanic formation, are about twenty in number, and inhabited chiefly by Spanish colonists.

The Caroline Is. consist of several detached clusters of small coralline islands, extending in a belt from W. to E., the western extremity being formed by the Pelew Is.; the eastern by the Ralick and Radack Is. Further eastward are the Marshall and Gilbert groups.

The Sandwich Is. lie between 18° 50′ and 22° 20′ N. lat.; and 155° and 160° W. long., and consist of eight principal and several smaller islands, all of volcanic formation. Hawaii, or Owyhee, the largest, has an area of 4,500 square miles, and is remarkable for its volcanic mountains, Mowna Kea, 13,950 feet, and Mowna Loa, 13,760 feet in height, and the crater of Kilauch, a deep cauldron of boiling lava, in perpetual agitation. Honolulu, the capital, is in the island of Oahu. These islands enjoy a delightful climate, and magnificent vegetation; the bread-fruit tree, banana, plantain, cocoa-nut, palm, sugar cane, and other fruits and plants being indigenous. Christianity and civilization have been introduced, and an independent native government established.

Polynesia.

§ 170. Polynesia comprises the numerous archipelagoes and islands scattered over the Pacific Ocean S. of the equator, between Australasia and the 110th meridian of

W. long. They resemble in their natural features those forming the division of Micronesia, and include the Feejee, Samoa, Friendly, Hervey, Society, and Austral Is., the Low Archipelago, and the Marquesas.

THE FEEJEE Is. consist of two large, and a great number of small islands, situated E. of the New Hebrides. They produce bread-fruit, palms, and sandal wood in abundance.

THE SAMOA or NAVIGATOR'S Is. form a chain of four large an some small islands, extending between the 169th and 173rd m dians of W. long. They are surrounded by coral reefs.

THE FRIENDLY, or TONGA Is., S. of the Samoa Is., cons three groups, of which Tongataboo is the chief. They are low surrounded by coral reefs, but contain two active volcanoes. 'I principal product is cocoa-nut oil.

THE HERVEY Is. are a small volcanic group, of which Rarotonga is the largest.

THE SOCIETY Is. are a lofty volcanic cluster, surrounded by coral reefs. Tahiti, or Otaheite, the largest, is a mountainous and beautiful island, which has been called the gem of the Pacific. It has been placed since 1846 under a French protectorate.

THE AUSTRAL Is. are a small and scattered group S. of Tahiti.

THE LOW ARCHIPELAGO consists of an immense number of coral reefs and islets, very dangerous to navigation.

THE MARQUESAS Is. lie between the 8th and 11th parallels of S. lat., and the 138th and 141st meridians of W. long., and comprise thirteen volcanic and fertile islands belonging to France.

ERRATA.

Page 24, line 6 from the top, *for* "western," *read* "eastern."
Page 54, line 2 from bottom, *for* "Molesley, *read* "Molesey."